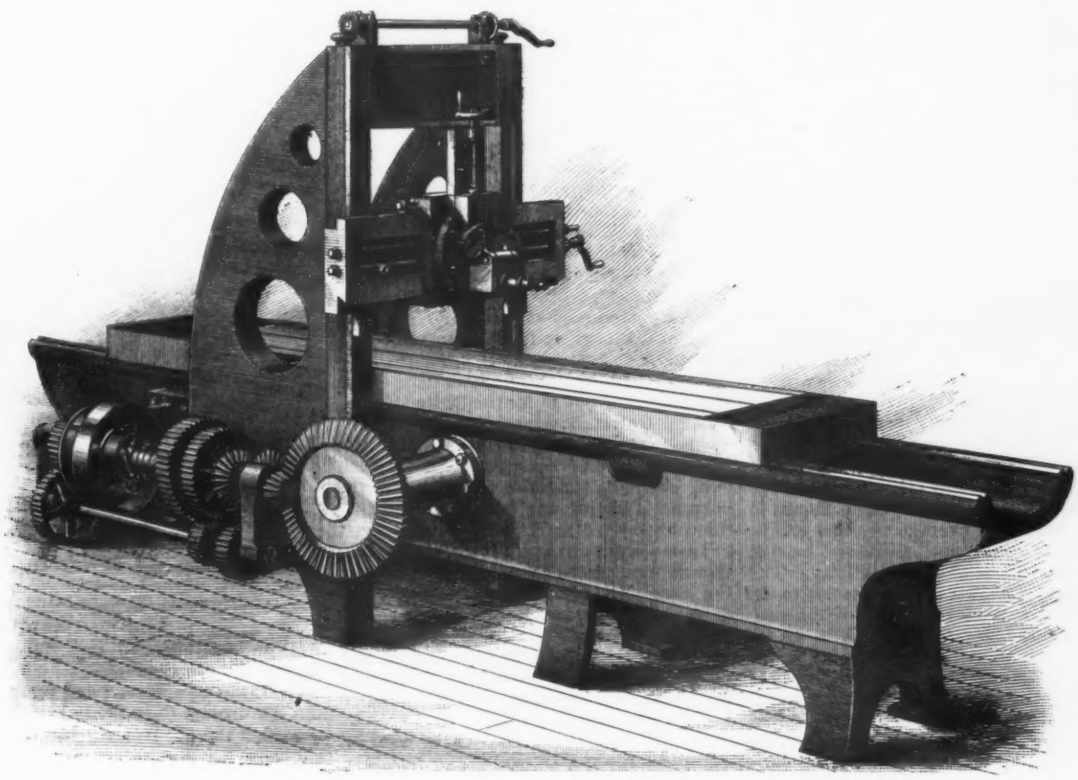
THE IRON AGE

THURSDAY JUNE 30, 1892.

The Coes 26-Inch Single Belt Planer.

We present herewith an illustration of a style of metal planer which, while it adheres closely in design to the generally accepted forms, yet presents new features especially designed to meet the requirements of advanced modern shop practice. The principal object in view has been to overcome, so far as possible, the momentum of the moving parts, and thus allow the construction of a planer with a quick return motion free from shock or jar.

The driving motion consists of a two-step cone of large diameter, which is mounted loose on the driving shaft. The cone is back geared with the addition of an intermediate pinion to reverse the direction of motion, and two slip gears are mounted upon the back gear shaft; the two slow-motion gears are keyed together and are also mounted loose upon the driving shaft, and one of them has clutch teeth of the saw-tooth form. A clutch sleeve is mounted on the driving shaft between the cone and slow-motion gears. It is made of as small diameter as practicable, and is operated by the table to engage either the cone or the slow-motion gears. The clutch with the driving pinion and rack wheel is the only part which is reversed, the cone, friction, band and gears being in continuous motion.



THE COES 26-INCH SINGLE BELT PLANER.

The belt power is made ample to perform the work required in reversing the table and its load, while the back gear train is proportioned to withstand heavy cutting strains.

The two-step cone, together with the two slip gears in the back gear train, give two reversing and four cutting speeds, varying from 14 feet per minute for tough steel up to 30 feet for brass, with two intermediate grades for soft and hard iron. The clutch is operated by a cam from the table and is held firmly in either position. The feed disk is driven from bevel gearing attached to the slow-motion gears; it is thus entirely independent of the motion of the table, and is driven positively and continuously in one direction.

A stop-motion device is employed for engaging the feed crank disk at the end of the backing stroke of the table, when the disk makes one whole revolution and stops, this motion operating the feed boxes at the end of the cross rail in the ordinary manner. The cam for controlling the feed stop motion is attached to the reversing dog on the table, so that the feed only takes place upon the completion of the backing stroke, and the table can be reversed by hand at will for tool setting without feeding, unless the stop motion is also connected up to be operated by hand at the same time.

It will be seen from this description that with this planer there is no shifting of belts, and no reversal of pulleys in high velocity, thus giving a smooth and easy motion with a high ratio of quick return motion, while the feed motion is positive and independent of the quick motion of the table. The machine is strongly geared and designed for heavy duty. It is being brought out by Z. B. Coes, Hamilton, Ohio.

Steel wire seating for railway car seats is being used in England and is said to be taking the place of the padded and volute spring seats. The new seat is composed of minute steel wire rings compactly knit together, over which only a thin layer of hair or a pad of felt is necessary. The London & Northwestern Railway have already fitted 653 to car seats and sleeping car berths, while the Great Eastern Railway have in use nearly 5000.

Compressed Air Traction for City Railroads.

The urgent necessity for some form of motive power to supersede the use of horses for passenger transportation in cities, something capable of universal adaptation to the somewhat varying requirements of different localities, has long been recognized. Many and various are the systems which have been devised and tested, some proving utter failures, while others have been so indifferently successful as to prevent their adoption for general use.

So far there appear to have been in this country but two methods of propulsion capable of attaining to the commercial results necessary to success, and these—the electrical and cable systems—are now very extensively used.

But while their success, both as to mechanical operation and commercial results, is unquestionable, the fact that they are not entirely satisfactory is indicated by the great readiness shown by the management of city railways to consider any new system which may be brought to their attention, provided, of course, that it appears to embody correct mechanical principles, and is not merely the crude and impracticable production of some enthusiastic but ignorant inventor.

As is well known, many devices for the utilization of compressed air for this purpose have been practically tested in the United States during the past 15 or 20 years. But all were failures from the fact that they were unable to carry a sufficient

quantity of air to furnish power for the distance necessary to be covered for the round trip, or from one terminal to the other. Of course the quantity could be very largely increased by carrying excessively high pressure, but the mechanical difficulties involved in that case were of such a nature as to render this solution of the problem impracticable.

Though not generally known, the possibility of the successful adaptation of compressed air to this purpose has been demonstrated by daily use for over a dozen years on the other side of the Atlantic. The system referred to is that of L. Mekarski of Paris, and the generic principle, to which alone its success may be attributed, is the utilization of the high specific heat of water for the purpose of increasing the temperature of the compressed air, and consequently causing an expansion of volume to an extent which entirely overcomes the difficulty of storing a sufficient supply for the distance necessary to be traversed in making a trip of average length.

In the year 1878 the tramways of Nantes, France, were equipped with a full line of cars of the Mekarski system, and almost from the first trip they have proved to be an unqualified success, having been in continuous operation since that time. That this success was commercial, as well as mechanical, is shown by the annual reports of the Nantes Company, in which the details of earnings and expenditures are fully given for comparison, with both animal and steam traction.

While there was undoubtedly room for considerable improvement as to the details of mechanical construction, in both the compression plant and the motors themselves, the results obtained were sufficiently marked to render it a matter of pertinent inquiry as to why the system should not have been more extensively used. There is no doubt as to the fact that there was a ready market for a system of mechanical traction to supersede horse power on city railways the world over. The conditions affecting its application were certainly no less difficult in Nantes than the average of other localities, and it could not, therefore, be due to any want of general adaptability. The only solution of this question seems to be in the business management of the promoters of the enterprise. While we do not presume to criticise the policy of the French company, there is no impropriety in seeking to account for the failure to extend the application of the system beyond the single locality mentioned, in view of the fact that the expiration of the patents, about a year since, has rendered the valuable features of the invention public property, and that its introduction into this country is now being attempted.

In the year 1881 a syndicate of English capitalists secured the services of Sir F. J. Bramwell, president of the London Society of Engineers, to proceed to Nantes and examine the system in daily operation, with the object, if his report proved favorable, of organizing a company to introduce the system on the London tramways. As a result of this investigation, the company was formed, and a car constructed. This was in several respects a modification of the French design as used in Nantes. Its performance was perfectly satisfactory during the many trial trips made for public demonstration, but for some reason the enterprise was never placed on a commercial basis.

In 1882 Col. Jno. E. Gowen, an American, at that time resident in Paris, came to this country as representative of the Mekarski Company, to negotiate the sale of the United States patent. After visiting Boston and New York, where he failed to excite interest in the matter, he made a more successful effort in Philadelphia. Upon the representations of Colonel Gowen, a leading city railway magnate was induced to bear the expense of a practical demonstration of the system upon one of the several lines controlled by him. Unfortunately for the success of this exhibit, very bad judgment was shown as to the method. Instead of importing one of the proved motors of the Nantes Company, and adapting its wheel gauge to suit our American tracks, one of the several steam cars exhibited on the Market street line during the Centennial Exposition (and which, by the way, was by no means successful even under steam) was altered, and equipped with the necessary storage for air. The car and machinery, when ready for the road, proved to be nearly double the weight of the French cars, carrying the same quantity of air, which fact alone was sufficient to handicap the undertaking. The only runs that could be safely undertaken were for comparatively short distances, and although the test was in all respects save one entirely satisfactory, the one prerequisite for success—*i. e.*, the ability to make the necessary length of trip—was lacking, and the demonstration as such was a failure.

While this result of the blunder was fatal, so far as the further consideration of the enterprise by the before-mentioned capitalist was concerned, there was sufficient proof of the capabilities of the system to interest many of those present at the several trials of the car. Among the number was Isaac S. Waterman, a well-known Philadelphia capitalist, ironmaster and manufacturer. The matter was brought to his attention through his being principal owner of the Philadelphia Hydraulic Works, where the work was done of equipping the car and furnishing the necessary compression machinery. His investigations were so far satisfactory that a preliminary contract was executed by which Mr. Waterman purchased the entire interest in the patent for the United States. Colonel Gowen, although fully authorized by the French Mekarski Company to act for them in the consummation of such sale, desired to return to Paris for the purpose of having the contract ratified by the company. Mr. Waterman also desired to have a report from his own representative on the construction and operation of the cars and compression plant then in daily use in Nantes. He therefore decided to have the superintendent of the hydraulic works accompany Colonel Gowen and make a thorough investigation of the subject from the standpoint of an unbiased and disinterested observer.

The result of this investigation was put into the form of a printed report for circulation as part of the contemplated prospectus of an American company. The circulation of the pamphlet, however, was prevented by the unfortunate sequel to the negotiations. Colonel Gowen returned from Paris with the ratification of the contract, made subject to several new and burdensome conditions, which Mr. Waterman considered as prohibitory if adhered to. Upon his positive refusal to accept any other than the original terms, Colonel Gowen made several further trips to Paris in his endeavors to harmonize the differences between the principals to the transaction. Finally Mr. Waterman lost patience with what he considered the vacillating course of the Mekarski people and withdrew entirely from further consideration of the matter. Colonel Gowen, after trying unsuccessfully to find another purchaser for the patents, returned to Europe with his mission a failure.

Since the expiration of the patents, about a year since, the valuable features of the system have attracted more or less attention in the United States, and several of our technical and trades publications have referred to it in articles more or less elaborate. The probability of its early introduction into successful use, and the great importance of such a consummation, renders these initial efforts of general interest.

That compressed air is to be the motive power of the future for city railways would be a rather bold and unwarranted assertion; but that it may become so is, at least, a matter of reasonable probability. Theoretically considered, and practically demonstrated, we find no discrepancies, and both theory and practice point to success, provided the treatment is what it should be.

The Masonry of Boiler Settings.

The brick work about boiler settings is often very imperfectly laid. It is mostly done by contract, with no one to supervise it who understands the severe use to which it is to be put. The bricklayer, who may never have worked on a job of this kind before, builds good-looking inside and outside walls, but the space between is apt to be filled up with odds and ends in the most promiscuous manner. Furthermore, he puts the same joint in that he would use if he were building a house, and this is just what we do not want in a boiler setting, particularly in the fire brick lining of the furnace. The joints throughout the setting should be thin, and the work should be done as faithfully inside as outside. Kaolin or prepared fire clay is used in laying the fire brick, and it should be mixed up so thin that it cannot well be used with a trowel. Some mill owners who have had experience in this direction will not allow a trowel to be employed at all, but require the men to use iron spoons. The fire brick should be dipped in water as they are used, so that when they are laid they will not immediately "drink up" the water from the cement. They should then receive a thin coating of the prepared fire clay or kaolin paste, and be carefully placed in position with as little of the kaolin or fire clay as possible. Every sixth course, beginning with the grates, should be a row of headers, well bonded into the masonry behind. The headers are of little use unless they are well secured into the walls of the setting, for when the lower courses of fire brick have burned away more or less we have to rely on these headers to a considerable extent to hold the upper part of the wall in position. In repairing fire-brick linings the lower courses, which burn out fastest, can be removed and replaced without disturbing the upper part of the wall, provided the headers are secure; while if they are not the entire wall may have to be rebuilt, and this cannot be done without either removing the boiler or tearing down a considerable part of the setting.—*The Locomotive.*

The population bulletin, just issued by the Census Bureau, shows the country what population it had in 1890. The total is 62,622,250, an increase of 12,466,467, or 24 86 per cent. The males number 32,067,880 and the females 30,554,370. The former have increased faster than the latter since 1880 by 1.64 per cent. It is encouraging to know that 53,372,702 of this population were born in this country, 9,249,547 being foreign born. There were 54,983,890 white persons in the country in 1890, and 7,638,360 persons of color, which includes negroes, Chinese, Japanese, and civilized Indians. If the population continues to increase at the same rate per cent. during the ten years between 1890 and 1900 the country will enter the new century with over 78,000,000. It is more likely to be 80,000,000. The white increase during the last decade was 26.68 per cent., and the colored increase 13.11 per cent. The same proportional increase would give over 70,000,000 whites and about 9,000,000 colored persons in 1900.

WORLD'S FAIR NOTES.

From this time onward work will boom at Jackson Park. Several of the great structures have been delayed by reason of the excuses of contractors for the carpentry and for the iron work. They first claimed they could not go ahead until the iron men had made certain progress. The latter said they were doing work as fast as the material arrived. A radical change was inaugurated last week. On the big Manufactures Building two shifts of men are now at work. The first one, consisting of 250 laborers, begin at 4 o'clock in the morning and is relieved at 12 o'clock by the second shift of 250 men, which goes on duty about that time. There has been no further lagging. The Edgemoor Bridge Company, who are putting up the big trusses, are employing 300 men. This week there will be 1000 workmen instead of 800.

The same rush of work has been ordered on Machinery Hall. Altogether 496 men are pushing that building to completion. Of that number 198 are working 16 hours a day.

A similar rush is taking place in the Landscape department. In this as well as other branches of the work, Superintendent Geraldine is crowding the contractors and their workmen to the limit. Three hundred laborers are working 16 hours a day, beginning at 4 o'clock in the morning, to complete the dredging and gardening.

The people who have in charge the provision for an adequate water supply are working 16 hours a day in digging trenches and laying pipes.

State buildings are going up with a rush. The commissioners of the various World's Fair boards are every day crowding the Surveying Department to have their sites staked off. It took the State people a long time to get started, but now they want to go faster than they can be accommodated. Last week workmen were engaged in putting up 14 structures and four more sites have been surveyed.

Illinois has, of course, led. Then come Indiana, Ohio, Wisconsin, Kansas, Michigan, Massachusetts, Pennsylvania, Delaware, New York, West Virginia, Rhode Island, Connecticut and Maine. Indiana, Ohio and Wisconsin structures are nearly ready for roofing. The others are not so far advanced, but most of them being small they shoot up with great rapidity.

California, Maryland, Wyoming and Montana are ready to begin building. In the Midway Plaisance the Barre Sliding Railway is being constructed, the natatorium is under way, and the Moorish Palace people will begin in a few days.

The Heidenrich Company of Chicago were awarded on Friday the contract for constructing the California State Building. The structure, which has been previously described, will cost approximately $75,000.

Test Trip of the Launches.

The test of the launches which are to carry passengers through the canals and lagoons at Jackson Park during the period of the fair was begun last week. C. P. Willard & Co.'s steam launch, the America, was put on trial. It began its run at 8 o'clock and continued until six. There were aboard sacks of sand and passengers representing altogether 49 people. The America behaved in what was considered a splendid manner. In a round trip course of 3200 feet with two landings, she made the run on an average of ten minutes. This record would have been beaten but for the fact that part of the time poor fuel was at hand. While good coal was available the round trips were made in eight minutes. Stops were made at landings without difficulty and with smoothness and dispatch. The America is a steam launch 40 feet over all, with 9 feet beam. She draws, when loaded to her full capacity of 49 passengers, 36 inches of water. The boat is propelled by a 30 horse-power engine. The boiler emits neither smoke, steam nor noise, and the launch glides along smoothly at as rapid a rate of speed as may be desired. The official test is as follows: June 21, Columbia Launch Company's steamboat; June 22, Columbia Launch Company's electric boat; June 23, E. R. Meeker's steam launch; June 24, E. R. Meeker's electric boat; June 25, Electric Launch and Navigation Company's electric boat; June 27, C. P. Willard & Co's compressed air boat; June 28 Columbia Launch Company's cab boat; June 29, Mr. Gould's naphtha boat.

First Exhibit at the Grounds.

The first exhibit to be taken into the World's Fair was received at the Custom House last week. It consisted of 13 enormous logs containing 1534 feet of lumber. They come from Canada, having been chopped from the great Northern pines of Canada. Chief of Construction Burnham applied to Collector Clark to have the logs turned over to him, as they are needed at the grounds at once. All other exhibits which have heretofore been received have been stored in the bonded warehouses, there to be kept until ready to be put on exhibition, and Collector Clark doubted his authority to release the logs. However, as the logs are all free of duty, and the Collector was assured that there was ample police protection on the World's Fair grounds and no danger of any one stealing the logs, he decided to release them. An order to turn the logs over to Chief Burnham was therefore issued.

Designs for Memorial Coins.

Director of the Mint Leech was in Philadelphia on Friday and visited the Philadelphia mint for the purpose of consulting with Superintendent Bosbyshell regarding souvenir coins for the World's Fair next year. The director brought with him photographs furnished by the commissioners of the Columbian Exposition, from which the designs are to be prepared. The coins will have on the obverse side a bust of Columbus, and on the reverse side the United States Administration Building, Chicago, together with suitable inscriptions. The designs will be commenced at once, and when completed will be submitted to Director Leech and the Secretary of the Treasury for approval.

Pacific Freight Rates.

Traffic Manager Jaycox received a statement from the Canadian Pacific Steamship Company which was gratifying to the Exposition Company. The steamship line agreed to carry exhibits from ports of China and Japan to Vancouver at the rate of $10 per ton. If exhibits are sent with through bills of lading to Chicago, the rate will be $16 per ton, and if the ownership be unchanged they will be returned free. The $10 tariff is a reduction of 33 per cent. on the regular rate, and the free return makes the charges less than half rates each way.

The $6 per ton charge between Vancouver and Chicago, by way of the Canadian Pacific Railroad, is a still greater reduction. The lowest rate on any class of goods between those two points is $22, and the highest about $80. As the steamship company make no mention of classes, but merely denominate the shipments as "exhibits," certain kinds of goods will be brought to Chicago from the coast and returned for $6, whereas full tariff rates for the round trip would be $160 per ton.

Traffic Manager Jaycox thinks the Canadian railroad will eventually do a big business on exhibits from the coast. He says the line is in none of the associations, and is free to act as it may see fit. Its willingness to be a party to a low rate is evidenced by its terms with the Canadian Pacific Steamship Company.

Germany's Exhibit of Rarities.

Germany proposes to loan a collection of Columbus rarities to the United States Government for exhibition at the Chicago Exposition, as will be seen by a communication to the State Department from Consul General Edwards at Berlin. In this document Mr. Edwards says:

I have been authorized by a member of the Imperial German Commission to report that the German Government are prepared to loan for exposition purposes at Chicago all the works of art and every object or rarity called for from time to time by the different branches of the World's Columbian Exposition. This promise is, however, conditional that the loan shall assume the character of an international transaction, and be delivered by the German Government to the United States Government. It is proper that the German Government should assume the responsibility of collecting the rarities from the various galleries, museums and libraries in Germany, and that the United States should accept the collection and take it into its own hands here in Berlin and be responsible to the German Government for the safe transportation, careful management and prompt return to the German Government of the entire collection.

The German Government, appreciating the fact that no time is to be lost in this matter, has begun to carry its generous and friendly proposals into practical operation by instituting a thorough search in the various galleries, museums and libraries throughout Germany for works of art, objects and rarities which are in any way identified with the Columbus period, and which the German Government believe would be likely to be of general interest to the authorities of the World's Columbian Exposition as well as the visitors at that great show.

England and France Want More Space.

Sir Henry Wood takes a rosy view of the World's Fair situation in England. Sir Henry is secretary of the British Fair Commission, and he arrived in this country a few days ago to transact some exposition business. He told a reporter for the New York *Times* shortly after landing that there were sufficient applications for space from British merchants to fill half the great buildings on the fair grounds. It has not been long since communications were printed in leading British newspapers regretting the apathy of the merchants toward the fair, but Sir Henry says his primary object in coming to Chicago is to get more space in the buildings. He thinks there will be a better exhibit of manufactures here than there was at Paris or any previous exposition. But, owing to the McKinley Tariff law, he doubts whether there will be any display of Sheffield cutlery and certain textile fabrics.

On the subject of an English art exhibit the secretary is enthusiastic, and in view of the strong effort being made by the exposition people to secure such a display, Sir Henry's following statement is interesting:

I think I may safely say that we shall be able to make a powerful bid for the first place in our art exhibition. English artists have become thoroughly aroused to the importance of this matter, for there is undoubtedly no better market in the world for good pictures than the United States.

The French school of art seems to have thoroughly captured the people of this country, and the pictures of living French artists find a much readier sale here than those of English artists. The English painters have become thoroughly impressed with this important fact, and we have had their eager co-operation in the selecting of a really magnificent lot of paintings for the fair. The exhibition will be confined altogether to the paintings of living artists. At first we thought to secure a showing of the old masters, many of the finest examples of which are possessed by private owners in England, but we found that this would not be possible on account of the unwillingness of many of the owners to allow such precious works to undergo the risks attending their transportation by sea and land.

Even if we had secured them the insurance would have been altogether impracticable.

Moreover, an exhibition of modern paintings will be of more general interest, and will at the same time be of more commercial value to living English painters.

Three World's Fair Commissioners from France are now in Chicago to erect and decorate the building which will be the headquarters of France at the fair, and to complete arrangements for installing the French exhibit. They are Baron de Vialar, M. Rene Dubuisson and M. Henri Motte. They say that France will have an exhibit unrivaled by that of any other nation and that will eclipse anything of the kind ever previously undertaken by the French Government. They have asked for 200,000 square feet additional space. The French building is to be one of the finest of foreign structures, and decorated most artistically under direction of M. Motte, who is a celebrated painter and decorator.

To be Inspected at the Grounds.

The question of administering the customs at the port of Chicago on the goods imported for use at the World's Fair, which has been under consideration by the officials at Washington, was settled by the adoption of the policy suggested by Collector John M. Clark, who has received a communication to that effect from Assistant-Secretary of the Treasury Spaulding. Provisions will be made for the inspection of goods at the grounds by the World's Fair Directory, who will give a receipt to the Collector of Customs describing the goods, their nature and place of deposit, and at the close of the fair returns will be made accordingly. Exhibits will be received duty free, and what shall constitute an exhibit will be decided by the Fair Directory. Goods which are to be sold on the grounds will be stored in warehouses on the grounds, and duty paid as goods are drawn. Exhibits sold subject to delivery at the close of the fair will have duty collected when the purchaser takes possession. "Exhibits" are to be immediately placed in their proper department and kept there. This method, it is thought, will do away with the trouble experienced at Philadelphia, where the customs authorities collapsed entirely, from having neglected to draw a distinct line between exhibits and dutiable merchandise.

Passenger Rates for October.

Vice-Chairman Donald of the Central Traffic Association has issued a circular to members in regard to rates for the dedicatory exercises to the World's Fair, as follows:

At their meeting held in Chicago May 12, 1892, the Columbian Passenger Committee adopted the following basis for excursion fares to Chicago and return for the above occasion:

"From points within the radius of from 150 to 350 miles of Chicago, one and one-third of the regular one-way first class tariff rate; tickets to be sold October 9, 10 and 11 good for return passage up to and including October 15, 1892

"From points within 150 miles of Chicago, the rate to be one and one-third fare, and the selling dates October 10, 11, 12 and 13, good to return until October 14, 1892, inclusive.

"From points outside of the 350-mile radius, one regularly established first class fare; tickets to be sold October 8, 9, 10 and 11, or from distant territory on such earlier dates as may be necessary, good for return passage from Chicago up to and including October 16, 1892.

Brevities.

The great wigwam used by the recent Democratic Convention is being torn down and the material will be used in the construction of four World's Fair hotels for the Woman's Christian Temperance Union for the accommodation of working girls visiting the fair.

Director General Davis received information from Chief Willard Smith, who is traveling in Europe, concerning the interest taken in the Department of Transportation by foreigners. Chief Smith says the Laird shipbuilding firm will send a fine exhibit. The Cooks will prepare larger and better models of the Nile steamers than have ever been shown. An ancient Egyptian funeral barge will be exhibited, as well as many other interesting things from the Orient. The corporation of Trinity House will lend models. In France great interest was displayed.

The threatened strike of Western iron workers, Chief of Construction Burnham says, will have no effect on World's Fair contracts. The iron for all the big structures except the Manufactures Building is practically in place. Fifteen of the 22 great trusses are up and the iron for the smaller ones is on the ground.

The fly wheel of the engine in the temporary power house burst Monday night of last week. A fragment of it went through the wall of the Mines and Mining Building, while another fragment, which must have gone into the air 1000 feet, fell through the roof of the building, cutting a clean round hole through the roof and floor and burying itself in the ground.

An exhibit of bells will be made by a large manufacturing concern in this country, and the firm is planning to display it in a reproduction of the Tzar Kolokol (king of bells), the famous broken bell of Moscow, which is 22 feet in diameter and 21 feet 3 inches high, weighs 443,772 pounds, and is used as a chapel.

Japan has applied for space in the World's Fair Mines and Mining Building for a mineral exhibit. It will include a fine collection of the celebrated Japanese alloys and bronze preparations.

On Tuesday 1200 delegates and alternates to the Democratic Convention and their friends visited Jackson Park. They were shown over the grounds and given a luncheon by the exposition people.

Effects of Reciprocity.

The Acting Secretary of State sent to the Senate on the 20th inst. a voluminous reply to a resolution passed a few weeks ago inquiring as to the "practical effect" of the reciprocity negotiations. It was accompanied by statistical tables showing the population and commerce of the countries and colonies with which reciprocity arrangements have been concluded, and the growth of trade between them and the United States since what is known as the Pan-American movement began in 1884. The communication says:

It is proper to suggest that "the practical effect" of these arrangements cannot be measured by the commerce of a month or a year, for the result must depend not alone upon the character of the concessions secured by diplomatic negotiation, but by the degree to which they are utilized by private commercial enterprise. Before the full result of the reciprocity arrangements can be realized we must provide the means of transacting our own business independent of the ships and banks and capital of our commercial rivals.

A table is submitted showing that the number of letters sent to South America has more than doubled during the last five years, and that the weight of printed matter has been increased 300 per cent.

Although for the reasons stated it is scarcely just to measure, as it is useless to conjecture, the results that have, or may, come from the advantages afforded by the reciprocity negotiations, it is gratifying to note that there has already been a considerable increase in our exports, and that there is good reason to expect that it will continue and be permanent. It is equally noticeable, too, that the exports from Great Britain to the Latin-American countries are falling off with even greater rapidity, so much so as to excite the apprehension of her commercial organizations, and impel them to seek some means of protection from the Government.

The commercial arrangement with the British colonies was concluded, proclaimed and went into effect on February 1 last, since which date there has been a small but encouraging increase in our exports.

The similar arrangements made with Salvador, Nicaragua, Honduras and Gautemala have not been in operation long enough to justify the expression of an opinion as to their practical effect, although the advantages they offer the merchants, manufacturers and agriculturists of the United States are considerable and important.

From April 1, 1891, when the reciprocity arrangement went into effect, to March 31, 1892—12 months—the exports of domestic merchandise from the United States were $14,585,359, an increase of $1,052,573 over the previous 12 months, and of $3,307,640 over the corresponding period ending March 31, 1890.

A statement is furnished showing that the exports of domestic merchandise from the United States to Cuba during the seven months since the reciprocity arrangement went into effect were $11,607,438, as compared with $7,981,888 during the same period of the previous year, which is an increase of $3,625,550.

A statement is furnished which shows that the exports of domestic merchandise from the United States to Porto Rico were $1,524,862 since the reciprocity arrangement went into effect, as compared with $1,320,169 during the corresponding period of the previous year

There has been a slight falling off in our exports to San Domingo since the reciprocity arrangement went into effect, which is due to a universal financial depression which has affected that republic during the past year, but the decrease has not been so great as that shown in the exports of Great Britain, which amounted to only $186,270 during the first three months of the current year, against $380,945 for the first three months of 1891.

The enactment of the reciprocity section of the Tariff act of 1890, in connection with the Meat Inspection act, conferred upon the Executive the power, through negotiation, to very promptly secure the repeal of the prohibition upon American pork, which for ten years had practically excluded that important product from most of the continental countries of Europe. But it not only brought about this result. It likewise enabled the Executive to negotiate a reciprocity arrangement, first with Germany, and afterward with Austria, by which, in return for the free admission into the United States of sugar, we obtain the admission into those countries at reduced duties of a large list of American agricultural and other products.

Negotiations upon the lines of section 3 of the Tariff act have been in progress in the City of Mexico between the United States Minister and a special commissioner of the Mexican Government, but so far no satisfactory results have been reached.

The great eight-foot water tunnel, extending 4 miles out under Lake Michigan at a depth of 80 feet, has been completed. It was begun over four years ago and has cost over $1,100,000. When connected with the water works pumps it will supply 150,000,000 gallons of water per day to the city, bringing the total available supply up to 300,000,000 gallons daily.

Apparatus for Casting Cannon.

The apparatus for casting cannon, of which drawings are here presented, has been used in making 30 mortars at the Builders' Iron Foundry, Providence, R. I., and has proved to be highly satisfactory. It is the invention of Richard A. Robertson, Jr., of Providence.

The objects aimed at in this design were to relieve the opposing initial stresses, to prevent opposing lines of crystallization, to furnish an accurate and easy method of centering the core, and to lessen the waste of metal and cost of casting. An important part of the apparatus consists in the mechanism for the cooling of the casting uniformly at all times throughout its entire length from the bore outward, so that the lines of crystallization shall radiate from the bore normally to its contour at every point throughout its entire length while the casting is solidifying, whereby the intensity of the initial stresses is uniform throughout the entire casting. This result is accomplished by water forced first through a pipe inserted in a hollow core, extending entirely through and beyond the ends of the casting. Then the core, with its pipe, is withdrawn as soon as the molten metal has set, when the water is forced through another pipe inserted in the cavity of the casting made by withdrawing the core. This pipe extends through the cavity, its outlet being below the body of the casting. The continuing flow of the water in the core absorbs the heat from the interior of the casting to such a degree that the liquid mass solidifies first nearest the core and from thence outward. When the casting has solidified sufficiently to be "set" the core, with its pipe, is withdrawn and the water is then forced through the second pipe into the cavity or bore, and as it flows back to its outlet, it touches the surface of the bore at every part, thereby cooling the casting more rapidly by direct contact than if the core were retained and also more effectively producing the desired conditions in the casting. By this method there is no intersection of different lines of crystallization, the intensity of the initial stresses is made uniform, and the formation of lines of weakness is prevented at any and all parts of the casting. While the casting is being cooled, the radiation of heat from its exterior is retarded by fires kindled in the molding pit.

Old Method of Casting Cannon.

In the apparatus used for carrying out the old system of casting cannon, in which the method of cooling the casting from the interior was the basis, the core was suspended in the mold cavity and a considerable distance left between its lower end and the bottom of the mold. This core was held by a frame called a "spider" placed on the top of the molding pit. To center the core in the mold cavity this spider was adjusted—*i.e.*, its position changed—by means of screws in the spider's legs. The core being necessarily of great length, and thus having considerable leverage, a slight change of its position at the top made a much greater variation at its lower end and rendered the centering of the core in relation to the mold cavity a matter of great difficulty; also, its lower end being free or unsecured, any irregularity in the flow of the metal from the runners *t t* into the mold cavity deflected the core from its position, and consequently when the core was withdrawn the bore of the casting would be eccentric and the value of the whole casting in its relation to cannon destroyed—a not infrequent occurrence. Again, the buoyancy of a core of great length when held in suspension in the mass of liquid metal created a powerful upward pressure, and to prevent the displacement of the core the spider and the adjusting screws had to be made enormously strong, at a very considerable cost of time and money. In the cooling of cannon cast in this manner, the tendency of the lines of crystallization being to lie normal to the surfaces

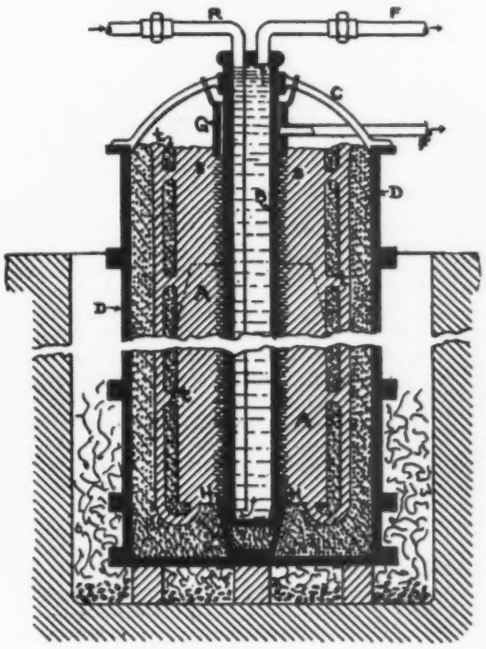


Fig. 1.—Vertical Section through Center.

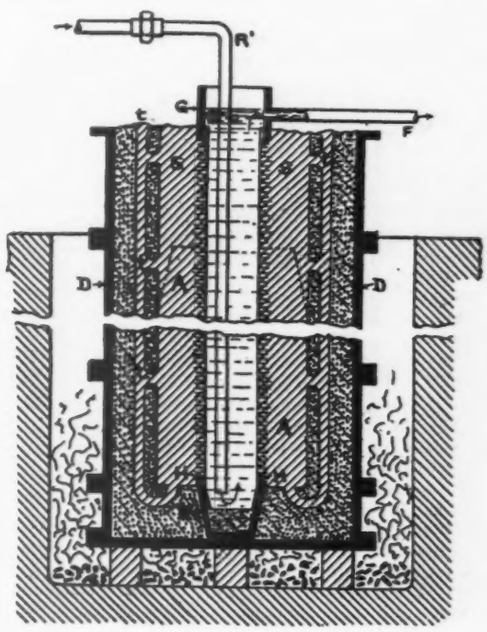


Fig. 2.—Vertical Section through Center after Withdrawal of Core.

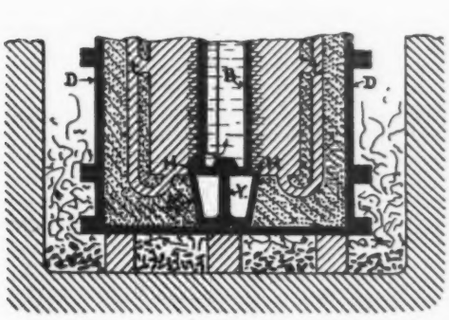


Fig. 3.—Vertical Section through Center of Mold at Bottom.

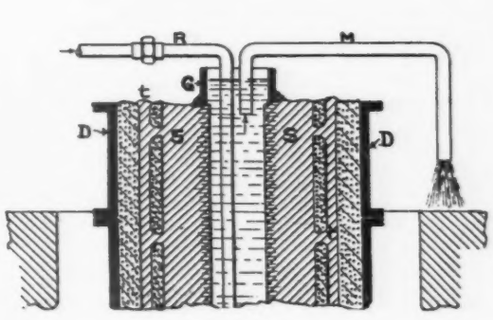


Fig. 4.—Vertical Section through Center of Mold at Top.

APPARATUS FOR CASTING CANNON.

of the crystallizing mass, those lines extending from the sides of the casting diverged from those at the bottom of the casting at almost, if not quite, right angles, the result being that lines of weakness and irregular initial stresses were developed at the base of the casting. Again, the lines of crystallization from the bore near the escape pipe, which was inserted at a right angle to the axis of the core in one side of the "sinking head," intersected the lines from the pipe with unequal intensity around the pipe, producing severe initial stresses and lines of weakness in that neighborhood, while the process of crystallization, being unequal below and above the water level established by the pipe, also induced initial stresses of varying intensity. As a result, it was necessary to cut off a large part of the casting so weakened at its base, while the effect of the different stresses near the escape pipe was not only to crack the metal in the sinking head, but frequently so far longitudinally as to ruin the whole gun.

New Method.

The apparatus here illustrated overcomes these defects in the following manner: At the bottom of the usual mold A is placed a light metal pot or receiver, K, filled with sand, and in this sand is preferably molded a "print," so called, to exactly fit one end of the core B. This pot is held in place by sand thoroughly rammed around it, but so as to leave a rim or edge, H, of the pot projecting into the mold cavity. This pot is made slightly larger than the core B, so that the projecting rim of the pot will practically touch the outer surface of the core near its lower end, as shown in the drawings, Figs. 1 and 2. The position of the pot at the bottom of the mold is chosen so that the print and core will be concentric with the mold cavity. The core is lowered into the mold cavity until its lower end rests in the print or indentation, its upper end being steadied and centered by a light frame or spider, C, through which the core end is free to slide upward, but without any lateral change of position. Both ends of the core being thus secured from lateral movement by the spider and print, Fig. 1, it is self evident that the core is accurately and easily centered with relation to the mold cavity and that this central position cannot be changed during the process of casting.

While it is preferable to use a print in the pot, as described, for the greater accuracy in centering the core, still its use is not absolutely essential. It is easy to place the pot itself so that its position will be concentric with the core and mold cavity and have the projecting rim of the pot touching the outer edge of the core end, thus preventing its having any lateral movement. It is also possible to omit the sand from the pot and substitute in the pot a cone spindle, Y, or other suitable equivalent, which will come in contact with and center the core, substantially as shown by Fig. 3. The core having been lowered into the pot and centered in the manner described, a cylinder, G, is suspended from the spider in such a manner that it will inclose the upper end of and preferably be in contact, or nearly so, with the core, the lower end of the cylinder being depended into the mold cavity a sufficient distance so that it will be submerged in the liquid metal when the mold is full, Fig. 1. In this cylinder is placed an escape pipe, F, the position of which is such as to leave a considerable distance between it and the surface of the sinking head S of the casting. The use of the escape pipe is convenient, but not essential, as will be shown later.

The Operation.

In the process of casting, the liquid metal is introduced into the mold cavity, as usual, through the gates or runners *t t*, and attaches itself to or fuses itself with the projecting rim H of the pot K and also with the lower edge of the cylinder G, thus making them a part of the casting, Fig. 2. Although Mr. Robertson prefers this method of connecting the cylinder with the casting, it may be made a part of the casting or otherwise joined—*e. g.*, the cylinder may be lowered into contact with the casting, and after a reasonable time the connection can be "luted" at the surface of the casting. The next step is to force the cooling fluid through the pipe R in the core B, which was made hollow to carry the pipe and as a return conduit for the fluid, Fig. 1. After the core has been withdrawn from the casting the coo'ing fluid is next forced into the bore of the casting itself through a pipe, R', in the manner already described.

It is evident that a syphon, arranged as shown in Fig. 4, or other means may be used for creating a current in the cooling fluid throughout the entire length of the pipe.

The hollow formed by the print in the pot after the core is withdrawn (or the hollow pot itself if no print is used) allows the cooling fluid to flow beyond the lower end of the body of the casting, and the cylinder at the top of the casting permits the fluid to rise above the sinking head S and casting proper to the escape pipe F, Fig. 2, although this escape pipe can be omitted and the fluid allowed to flow over the top of the cylinder, to be thence carried off in any suitable manner without its touching the exterior of the casting proper, the main object being to keep the level of the continuous flow of water or fluid above the top of the sinking head. Since the cylinder and pot were described as touching, or nearly touching, the outer surface of the core, it is evident that when they have been made a part of the casting, as shown, the cooling fluid cannot touch any part of the casting proper except the bore, unless it be a very small part of the extreme outer ends of the casting at its top and bottom near the cylinder and receiver, as already explained, which part would be so small that the effect created would be so small that the effect created would be inappreciable in its relation to initial stresses and may be neglected. Hence it follows, the fluid having been carried entirely through the bore of the casting and beyond the casting proper at both ends, that the process of cooling will be uniform throughout the entire length of the casting from the exterior outward, that there is no opportunity for and hence no intersection of different lines of crystallization; that the intensity of the initial stresses is made uniform or regular throughout the casting, the formation of lines of weakness prevented, and consequently that there is no danger of losing a casting from these causes. When a print is used in which the lower end of the core exactly fits, or when the projecting rim of the pot fits closely to the outer surface of the lower edge of the core, none of the liquid metal can get beneath the core and create any upward pressure thereon. A very slight spider, non-adjustable, can therefore be used. Also the metal pot at the lower end of the casting, and which is lifted out with the casting, being light, is easily broken with a hammer, exposing the bore of the gun at once at its breech, avoiding the necessity of cutting off any of the casting. The cost of casting cannon is thus greatly lessened by this saving of metal, time and labor.

C. F. Bonney of the Bonney Rapid Vise Company, Marian, Ind., reports to *Crescent Sparks* that in hardening thin circular saws or cutters he has effectually overcome the trouble he formerly experienced from the saws warping out of shape. The method which he practices is to string a number of saws on a mandrel or bolt and set them up tight against each other by means of a washer and nut at each end, the washer being of a size to permit the teeth of the saws to project about ¼ inch, or to the depth of the teeth all around. The mass is then treated as if it were a solid cutter, and when separated the saws are found to be hardened deep enough for all practical purposes and to be straight. If the right degree of heat is employed, they need not be drawn.

Multiplying Trade Organizations.

The New York Board of Trade and Transportation keeps at its offices a register of commercial associations throughout the country, and endeavors to keep this list up to date and to restrict it to organizations representing national, State or local trade interests. Though not strictly complete, this list includes 1066 organizations, representing 48 States and Territories, or all except Nevada. At least three-fourths of the organizations are boards of trade, chambers of commerce and exchanges, which in name at least purport to be thoroughly representative commercial bodies; 27 are national associations, and many represent trade interests of a State or group of States. New York leads the list with 150 organizations, Massachusetts and Pennsylvania following; but of the 13 States that are credited with more than 25 trade organizations each, only four are Eastern or Middle States, and Ohio takes the fourth place and Texas sixth. The list arranged according to number of organizations is as follows:

New York	150	Louisiana	13
Massachusetts	89	Colorado	11
Pennsylvania	82	New Hampshire	11
Ohio	68	Vermont	11
Maine	46	Nebraska	10
Texas	41	Florida	9
Indiana	39	North Carolina	9
Michigan	39	Arkansas	8
Missouri	39	Mississippi	7
Illinois	38	Oregon	7
Minnesota	34	Washington	7
Iowa	26	South Carolina	5
Wisconsin	26	West Virginia	5
New Jersey	24	Montana	4
California	24	North Dakota	3
Connecticut	23	South Dakota	3
Virginia	23	Arizona	1
Maryland	20	Delaware	1
Tennessee	19	Idaho	1
Alabama	14	New Mexico	1
Georgia	14	Oklahoma	1
Kansas	14	Utah	1
Kentucky	14	Dist. of Columbia	1
Rhode Island	14	Wyoming	1

It will be seen that of more than 1000 organizations 194 are in the six New England States, and 257 are in New York, Pennsylvania, New Jersey and Delaware, while more than 500—more than half the entire number—are in the West and South. Most of these organizations have been in existence only a few years, additions of late having been very rapid. But in dealing with trade questions they exert an influence which cannot well be disregarded either in Congress or the State Legislatures.

At Niagara Falls there will be erected soon an observation tower. It is said that a stock company have been formed for that purpose. It will be of great hight, located on the American side of the river near the new Suspension Bridge, and just outside the reservation. Engineer Wallace has prepared plans for the tower, with the understanding that it will be finished during the present year. The tower will probably be of steel. It is also reported that corporation papers have been filed in Toronto by a company styling themselves the Eiffel Tower and Elevator Company, who will build an observation tower on the Canadian side 180 feet high.

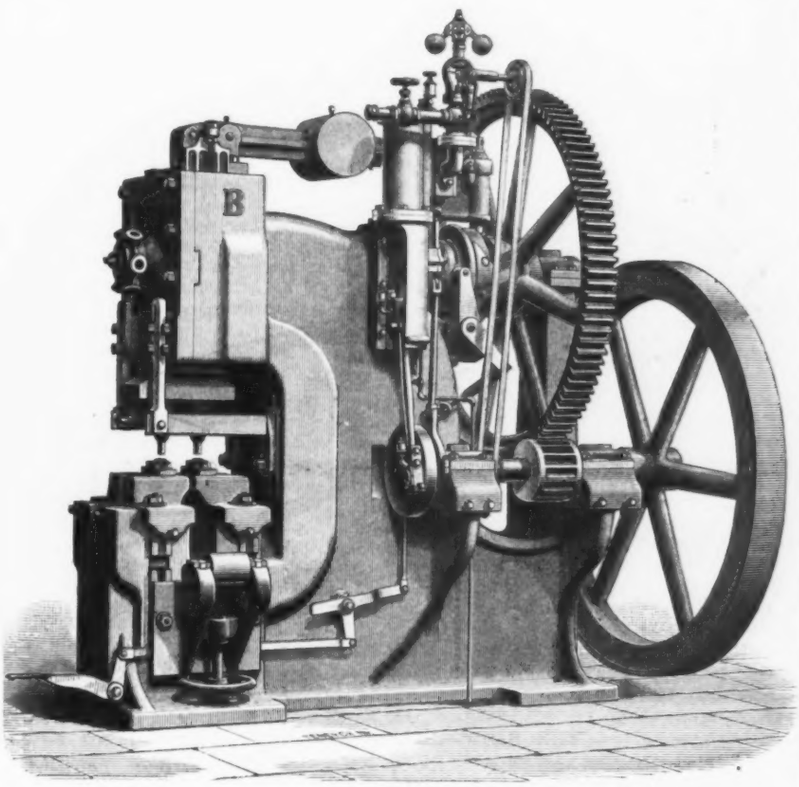
William R. Hutton, formerly chief engineer of the Hudson River tunnel, has filed a lien against property of the Hudson

Tunnel Railway Company (beginning at foot of Morton street and extending west to Jersey City) for $12,458 salary and disbursements.

Beam Coping and Punching Machine.

Our illustration shows a machine built by the Long & Allstatter Company of Hamilton, Ohio, and intended for performing various operations upon I-beams, channel bars, angle bars, &c. The machine shown in the engraving is fitted with two punches for simultaneously punching two holes in the flanges of I beams, but mere change of tools fits the machine for other kinds of work.

The die block is double and the I-beam is pushed between them with its flanges resting on the dies, an adjustable roller under the beam rendering the shifting easy. Each descent of the ram punches a hole in each flange at the top of the beam. The two punches and their dies are adjustable to and from each other to regulate the distance between holes, and they are independently adjustable in the other horizontal direction, so that the two holes instead of being opposite each other may bear any relation desired. The punches and dies are readily removed so as to be replaced by tools for punching a number of holes at once in the webs of beams, &c., or for any kind of punching in beams or plates, or by shear blades for any of the usual operations upon plates, bars, &c. This machine is also capable of forming complete the coped joints in beam work, channel work, &c. When this is to be done the punches and dies are replaced by a single set of coping tools, which perform the entire work of forming the coped joint. The machine is made in a number of sizes suitable for coping different sized beams, the largest machine coping beams 24 inches deep and below, while the smallest machine will cope 6 inch beams and below. Throat depths vary from 12 inches to 48 inches. The machines all have automatic stops which bring the tools to rest at any desired point of the stroke. The illustration shows the machine as self-contained, being provided with steam engine, thus only requiring steam connection to put it in condition for running, but the machines are also built to be operated by belt on tight and loose pulley.



BEAM COPING AND PUNCHING MACHINE.

Business is reported as unusually dull at Harrisburg, Pa., and vicinity. The local furnaces are out of blast, and, except in one or two instances, the iron and steel industries are feeling the effect of the depression in the market to the full. Most of the mills are running solely for the purpose of "keeping going," and giving employment to their workmen, hoping for better times and prices. The nail works are running to fill orders and little beyond, and orders are not extensive. There is a little business doing in steel plates, but almost entirely in small lots for present use, widely distributed. Large orders are almost unknown. At the same time several local concerns are building additions to their plant, showing that expectations for the future are not altogether unpromising. The Pennsylvania Steel Company are putting up a new slabbing mill at Steelton, the McCormick Company, a new sheet mill in connection with the Paxton Rolling Mills, and a large universal mill has just been finished on the Central Iron Company's works, while Lalance & Grosjean's plate mill, near Harrisburg, is well on the way toward completion. A new agricultural implement factory is also in course of construction at West Harrisburg.

Southern Africa is being penetrated by railroads at various points. Work on the Delagoa Railway has been resumed, and before the end of the year both Cape Town and Port Elizabeth will be in direct communication with Johannesburg, the great mining center. Two or three months later, Pretoria, the capital of the Republic, will also be joined to the outer world by rail.

War Ships Building in 1892.

The end of the Government's fiscal year 1892 is close at hand, and among the many developments toward the perfecting of systems for the permanent maintenance of our position among nations not one is more noteworthy or has made greater material progress during the past twelve months than the United States Navy.

A good way to clearly show this is to institute a comparison between our own naval shipbuilding programmes and those of other powers. To do this the more correctly and impartially we will make use of the facts and figures to be compiled from a study of "Brassey's Annual" for 1892, which within the past fortnight has made its yearly appearance in England, corrected up to date, and a review of which appeared in *The Iron Age* of June 16.

Navies are as a rule maintained with a definite object in view, some to take the offensive, some to take the defensive, according as they belong to the larger or less powerful maritime States. The general aim and policy being different in different countries, it follows that the general organization and programmes of shipbuilding will be found to differ widely. In order, therefore, to arrive at a proper appreciation of the state of any navy it is necessary to measure the efficiency of ships in the light of the various considerations which have been suggested above.

Speaking broadly, it may be stated that the navy everywhere to-day demands ironclads steaming 18 knots, of large coal-carrying capacity, with an armament well protected against the attack of rapid-fire guns, and with an efficient protection from shell fire and the terrible powers of the torpedo. Sea-going cruisers are asked for capable of steaming 20 knots and maintaining high speed for a long period.

Each country is laboring with an activity never seen before in a time of peace to increase its naval forces and to provide them with every improvement.

In considering the figures, &c., relating to the building projects as given in Brassey's tables the ships will be divided into the two great classes of armored and unarmored.

Of course, as all must admit, Great Britain heads the list without a rival. The armored tonnage she has in hand, laid down and completing, amounts to 134,200 tons, divided into two classes of ships—two of 10,500 tons each and eight of 14,500 tons each. The former will have 12-inch compound armor, the latter 18-inch. The first will mount four 10-inch guns in barbettes; the second four 13 inch guns. In the smaller ships the other guns are to be 4.7-inch rapid firers, while the bigger vessels will mount 6 inch rapid firers. The speed of the one will be 18 knots, that of the other 17.5. Last year England had in hand only 109,550 tons of armored ships.

In France there is also noticed an increase in the amount of armored tonnage building over that of last year. Altogether there are 94,840 tons of displacement being worked up into 14 ships; whereas last year the amount was 87,960 aggregate tons. There is much variety observed; from a couple of armored gun boats of 1045 and 1630 tons to big battle ships of 11,986 tons. Classifying the armored ships building, it is found that there are five battle ships with displacements each from 11,700 to 12,000 tons, thickest armor, 17½ inches of steel; speed, 18 knots; armament, two 12-inch, two 11 inch, eight 5.5-inch, and numerous smaller caliber rapid firers. There are two battle ships of 6590 tons each with the same thickness of armor and speed as above, but with fewer guns of the same caliber. There are four armored cruisers nearly 5000 tons each, protected with 3½-inch steel plates, mounting two 7½-inch guns and six 5½-inch rapid

firers. With forced draft, these armored cruisers should attain a speed of 20 knots.

Passing next to the armored ships building in Germany, it is found that there is a 10,000-ton battle ship on the stocks and four 3600-ton coast defense vessels have been laid down. These five vessels, aggregating 24,400 tons, represent Germany's progress, that is, what is on the stocks. In the water are two 10,000 tonners and a couple of coast defenders, none of which will be completed for a year or so.

Italy has been having some heavy financial crises, which have compelled a reduction in naval expenditure. She, therefore, stands this year in the same position as last year; that is, there is building one 13,250 ton battle ship of 18 knots speed and 18-inch armor.

Russia, like ourselves and France, faces two oceans, and as the distances which must be covered to unite her two fleets are very great, she endeavors to establish in both waters a powerful maritime influence.

She is building some 77,520 tons of armored vessels; one of these is to be of 12,500 tons; four are of nearly 11,000 tons each; one is of 8800 tons and two are of 4000 tons each, a total of eight armored vessels. The heaviest gun to be carried is a 12-inch, and the thickest armor 16-inch. The speed varies from 16 to 18 knots.

The armored tonnage building in other foreign countries than those above mentioned is inconsiderable. Denmark is busy over a 3200-ton turret ship, with 12-inch armor, two 10-inch guns and 15 knots speed. Holland has in hand a 4600 ton harbor-defense ship of 17 knots speed, with 11 inch armor and 11 inch guns. Sweden has a 3135-ton coast service armored ship on the stocks, to have 11-inch armor, 10-inch guns and to go 16 knots.

An exception to the above work of second and third class powers must be made in the case of Spain. Spain's policy being that of a defense of her colonies, is engaged in building several fine armored cruisers. Altogether there are five of them, three of 7000 tons each, and two of 9235 tons each, a total tonnage of 39,470. All these ships are expected to have a speed of 20 knots. Their armor belts will be 12 inches thick. Their largest guns will be 11 inches diameter of bore, with 5.5-inch rapid firers as the second caliber of the primary battery.

Now comes the turn of the United States, and in order to see ourselves as others see us and with the same impartial eyes that have looked on other navies, we again take the figures and facts as given in Brassey's tables and proceed to work them up. We then find that our new growing armored navy has rebuilding five monitors aggregating 21,320 tons. Four of these are of 3815 tons each, with 11.5 inches of armor, 10½-inch guns and 12 knots speed. The fifth is the old Puritan of 6060 tons, with like armor, guns and speed. Besides the monitors rebuilding there are the three battle ships of 10,230 tons each, a total of 30,690 tons, to have 18 inch armor, 13 inch guns, and 16 knots speed. To complete the list there is the 2050-ton ram, to have 6-inch curved armor and 17 knots speed. Thus we find that our coutry is engaged in constructing nine armored vessels of a grand total of 54,060 tons of displacement.

Arranging a table of total armored tonnage building and the average tonnage per armored ship for those nations that are working on more than one ship, we find the following:

Nation.	No. armored ships building.	Total tonnage building, 1892.	Average tonnage per ship.
England	10	134,200	13,400
France	14	94,830	6,800
Russia	8	77,520	9,700
United States	9	54,060	6,000
Spain	5	39,470	7,900
Germany	5	24,400	4,900

Though France leads in the number of ships building, she comes fourth in the average size per ship. Were the table arranged according to the average tonnage per armored ship building, the order of the countries would be: England, Russia, Spain, France, United States and Germany.

The work of the United States during the past year, so far as armored construction goes toward indicating great material progress among nations, has been sufficiently shown, and we regard it as decidedly creditable, all things considered.

It is now in order to see what has been done in the direction of bringing forward unarmored shipbuilding. As protection and guns are of secondary importance in unarmored cruisers, we will show where we stand among nations in cruiser construction by submitting the following table of unarmored ships building, compiled from the same source as the armored tonnage, Brassey's 1892 "Annual." The order of arrangement is according to the amount of total tonnage per country:

Nation.	No. unarmored ships building.	Total tonnage building, 1892.	Average tonnage per ship.
England	26	67,530	2,214
France	11	26,436	2,400
United States	6	26,143	4,050
Germany	9	19,590	2,175
Italy	8	15,326	1,900
Brazil	4	9,350	2,337
Spain	6	8,600	1,430
China	5	7,500	1,500
Japan	3	6,476	2,158
Russia	7	6,000	860

The figures for Russia are not of much value. It is difficult to ascertain the size of the new ships that have been begun this year, hence only those vessels are given that have been on the stocks some time.

A noticeable fact in the above table is that our size per ship is greater than that of any other country. France comes next, then Brazil, then England, then Germany, then Japan.

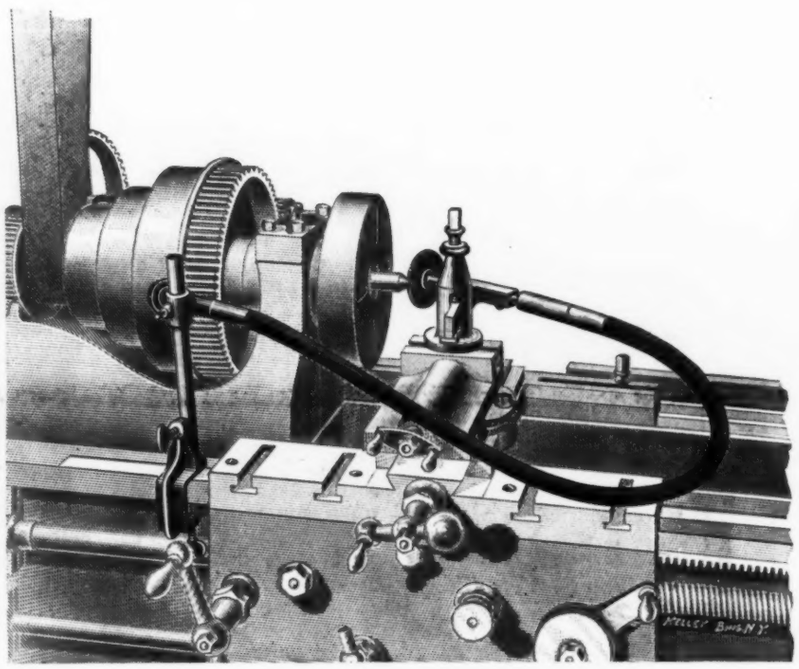
Finally, as a *résumé*, tables 1 and 2—that is, the armored ships building and the unarmored ships building—should be added together and a third table of total tonnages made up. This will give a correct exhibition of what has been going on for the past year toward bringing forward our naval shipbuilding policy, and what others besides ourselves are accomplishing. A table constructed on these lines will present a showing somewhat as follows:

Nation.	Rank.	Aggregate tonnage building of all kinds.
England	1	201,730
France	2	121,266
Russia	3	83,520
United States	4	80,203

With the rest of the world "nowhere."

The Stow Center Grinder.

Some time ago the Stow Mfg. Company of Binghamton, N. Y., had use in their own shops for an efficient center grinder, and designed the appliance here shown. The device worked so well that they decided to place it upon the market. It consists simply of a 3½-foot flexible shaft provided with a pulley at one end, the other end being attached to a sliding spindle holding a 3 inch emery wheel. The spindle turns in a tool post—same as an ordinary tool. The shaft is driven by the pulley on its end, being held in contact with the cam as shown. It can be as quickly set as any lathe tool, and can be used on any size lathe without additional attachments. The bracket holding the friction pulley is adjustable to any size lathe up to 36 inches.



THE STOW CENTER GRINDER.

The Amalgamated Association of Iron and Steel Workers at Pittsburgh, on Saturday morning, elected these officers for the ensuing year: M. M. Garland, president; J. C. Kilgallan, secretary; Stephen Madden, assistant secretary; Edward Kyle, treasurer. Three trustees of the association were to have been elected, but only two were chosen—John Pierce and John Gallagher. The delegates to the National Federation Convention are William Weihe, W. A. Carney and W. E. Hatton. William Weihe declined a re-election as president of the association.

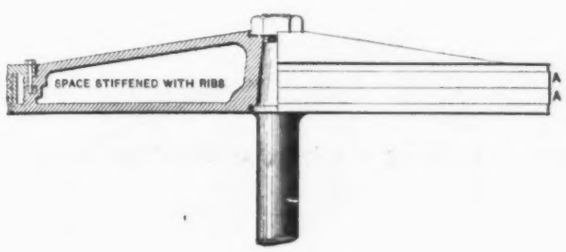
The new United States arsenal at Columbia, Tenn., the only institution of its kind in the Middle South, will be formally opened with imposing ceremonies on July 13.

Steel vs. Cast-Iron Pistons.

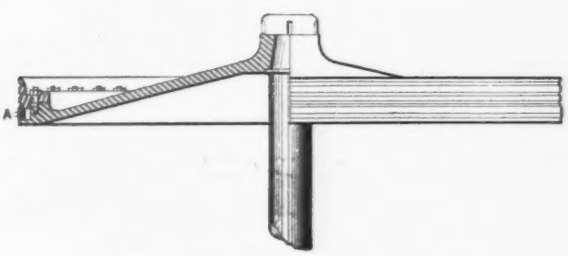
When it became possible to cast steel economically and with the same facility as cast iron, the mechanical engineer, appreciating the better qualities of the newer article, began simplifying the designs of such parts of the steam engine as were most cumbersome and bulky, and found the field for such improvement so widespread, and the number of details which would readily be benefited by a change of form so multitudinous, as to almost reform the general appearance of the completed mechanism. Hence, in spite of practical difficulties attending the production of perfect castings in steel, its adoption is not only very extensive but rapidly extending, and with an increased experience in the foundry, there is very little reason to doubt its almost entirely superseding cast iron, finally, for such work.

In the particular case of the steam piston, the difference between the old and new forms is a very marked one and serves as an excellent illustration of the effect which the change of metal has upon the general design. The accompanying sketches show this clearly, and it requires but a cursory glance to realize that there are many points of superiority in favor of the steel piston.

In bulk the new style occupies so much less space as to need no figures for verification, while the very fact of its having no core space, with its uncertainties and the attendant miseries of core plugs, is an advantage of no minor moment. Of course the weight of the steel piston is much less than that of the other, while its better shape gives it the required stiffness with less metal.



Old Style 72-Inch Cast-Iron Piston.



New Style 72-Inch Cast-Steel Piston.

STEEL vs. CAST-IRON PISTONS.

A striking point in the new design is the complete reformation in the width of the packing rings A. It will be observed that their width has been reduced to less than one-quarter of that of the old style, and yet the modern pressures are much greater than that which the wider rings were called upon to resist. This change is not due, however, to the adoption of steel, but incidentally comes in at this time, and is the result of long experience, wherein engineers have found that such broad bearing surfaces were not conducive to the best results. The piston itself is now turned to quite a close fit, and the wide follower is also made to give a fair bearing, and indeed, with its water grooves, forms a secondary packing surface, but the narrow rings are left to perform their own particular service of making a steam-tight joint against the walls of the cylinder, and to do this effectively it is not necessary to make them much wider than ⅛ inch each, or a little over an inch for the two contiguous rings. These rings are also made in several sections instead of in single rings. The latter form was not only liable to break, and expensive to renew, but the joint it made was in no way superior to that of the sectional form, which is fitted accurately and joined with tongue pieces in a perfectly steam-tight manner. The fitting of the piston rods is not changed in any important particular.

Completion of a Great Engineering Project.

On the 22d inst. the 4-mile water tunnel under Lake Michigan, at Chicago, was practically completed. On that day a junction of the lake and shore heads was made by the two gangs of workmen who have been steadily progressing toward each other for four years. The junction was effected 14,900 feet from shore. The tunnel is intended to supply the city of Chicago with water drawn from a point far enough out in the lake to insure freedom from pollution.

The first stroke of work on this tunnel was made on June 11, 1888. A few weeks previous to this the movement to increase the city's water supply and at the same time to free it from danger of sewage pollution had culminated in letting the contract for constructing a 4 mile tunnel to Andrew Onderdonk for $1,150,000, that sum including crib and shaft work, and the contract calls for the delivery of the tunnel in shape to open the ports.

From the shore shaft to the inside breakwater one tunnel 8 feet in diameter was bored. From this point the waterway diverges to two 6-foot branches. During the first 400 feet the tunnel courses are irregular on account of the experiments made necessary by the quality of the soil. But from the 400-foot point they follow a parallel course, the distance between them varying from 18 to 38 or 40 feet. At the government breakwater, which the tunnels reached in July, 1889, they were 18 feet apart.

On these lines they continued until a point 12,500 feet from shore, where they again combined to form one 8-foot bore. Shortly after this junction the engineers met one of the hardest problems they were ever called to solve. The 2½-mile crib (or inlet) had been located on the line about 13,500 feet from shore. Before that was reached a pocket of dangerous quicksand was struck. A detour was necessary. From the 12,500-foot point the 8-foot tunnel was carried in an elliptical curve 300 feet to the north and back again to the original line 14,900 feet from shore, the detour covering 2400 feet. In view of this deviation the junction effected last week with so much precision is considered a triumph of engineering skill. The pocket of quicksand was encountered on February 12, 1892.

Work from the lake head was begun at the crib (or inlet) January 13, 1891. Excavation progressed daily until the men pierced the last few feet of clay on Wednesday and stepped into the shore head. From the crib work was confined to one 8-foot tunnel.

The engineering skill that directed the picks came from the city office. When the work was begun, A. S. Artingstall was city engineer. After him Messrs. Northway, Cooke and Clarke have been in charge. The engineers in direct control of the work have been Bernhard Feind, William A. Lydon and F. F. Hopp. Mr. Hopp is one of the present staff. He and Mr. Feind solved the problem of the big detour near the 2½ mile crib.

The capacity of the new tunnel is 130,000,000 gallons daily. Present pumping facilities are 72,000,000 gallons in excess of the daily supply. City Engineer Clark estimates that the ultimate total supply of the old city, when the new tunnel is completed, will be 236,000,000 gallons daily. To this for the entire city are added 24,000,000 gallons from Lake View station and 60,000,000 from Hyde Park, making the total for the area inside the limits 320,000,000 gallons. The volume will be distributed among the stations as follows:

	Gallons.
Chicago avenue	86,000,000
Fourteenth street	54,0 0,000
West Side	36,000,000
Harrison street	60,000,000
Lake View	24,000,000
Hyde Park	60,000,000
Total	320,000,000

Mr. Clarke allows 20,000,000 gallons for a daily margin to cover stoppages for repairs, leaving a trustworthy supply of 300,000,000 gallons. "That will give an hourly supply of 12,000,000 gallons. It will be sufficient for the time at least, but that is all that can be declared, in view of the rapid growth of Chicago."

The tunnel will be ready to deliver water by October 1. With the excavation complete, there yet remains a large amount of work to be done in the way of cleaning up. Refuse has accumulated, tracks have been laid to convey materials, and false work has been erected. All this must be torn up and the walls cleaned as much as possible before the gates are opened.

With the 4-mile tunnel completed the department will be relieved enough to turn its attention in other directions. The north shore inlet, which it was expected to use as a temporary relief, will be extended to the old crib and the Chicago avenue tunnels will probably be carried out 2 miles beyond the present terminus.

The crib in which the tunnel ends is 20,963 feet from the shore. It has been in place for nearly two years and is sunk in 85 feet of water. The superstructure remains to be built and contract for that work will be let in a few days.

The miners at the Pratt Mines of the Tennessee Coal, Iron & Railway Company have signed the scale for the next 12 months. It is the same sliding scale as was in force last year and is based on a minimum price of 45 cents a ton. Three thousand five hundred miners were represented at the conference.

FIRE-PROOF CONSTRUCTION.

The importance of erecting fire-proof buildings is becoming each year more apparent. Architects generally, and real estate owners who have their own and the public interests at heart, are endeavoring more and more to lessen the risk of fire, and are planning and building edifices which are not only beautiful to look at, but which are designed to be perfectly fire proof. Heretofore, on account of the great cost of such construction, only a few of the largest, and those carrying the greatest risk of life or of valuable goods, have been made thoroughly fire proof. The cost, in a great measure, has been owing to the excessive weight of the floors and of the minor partitions, the former usually being constructed of heavy iron beams, filled between with solid brick, or with hollow terra cotta blocks loaded up to or above the top of the beams with concrete, making a weight of from 70 to 110 pounds for each square foot of the floor area, in addition to the weight of the iron beams; and the latter of solid or hollow bricks, weighing, with the plaster, from 35 to 55 pounds for each surface foot of wall. This enormous load of brick and concrete necessitates the use of very heavy beams, and of correspondingly heavy and strong walls and foundations. Nor has this construction proved effective in all cases where it has been put to a severe test. The late large fire in Boston is an example of this.

Iron Rods Embedded in Concrete.

Within the past few years experiments have been made with concrete in the form of slabs and beams, to test its ability to support loads and to take the place of brick arches. The result has been highly satisfactory. Its ability to support great weight without crushing and its enduring and fire-resisting qualities are well known. Its low tensile strength and liability to fail under tensile, or transverse, strain is also well known, and has hitherto prevented its use in the parts of buildings where tensile strength is required. These experiments have shown, however, that iron may be incorporated with the concrete, and can be depended upon for its full tensile strength under all conditions, provided the iron be well anchored at intervals in the concrete. If not anchored, and a heavy load were applied, the slab would deflect, causing the concrete to crack and

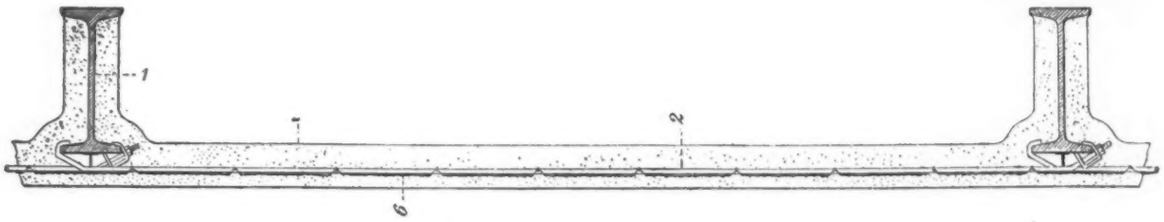


Fig. 1.—Sectional View of Beams and Floor.

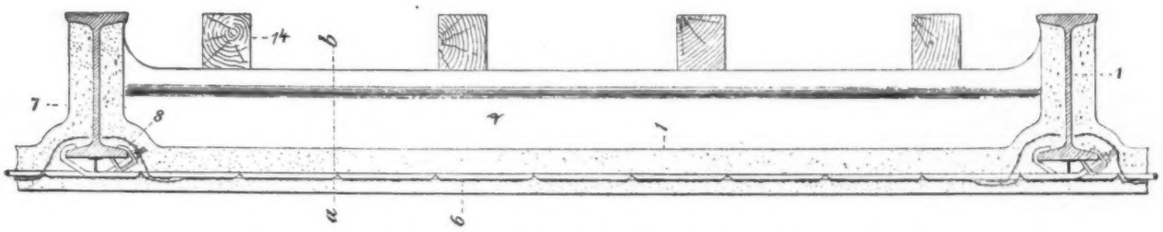


Fig. 2.—Similar to Fig. 1, but Adapted to Carry Floor and Ceiling Load.

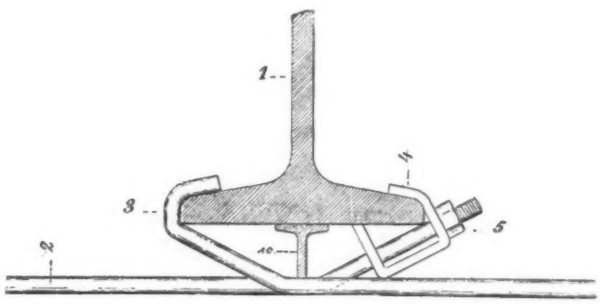


Fig. 3.—Half Section of 10-Inch Beam.

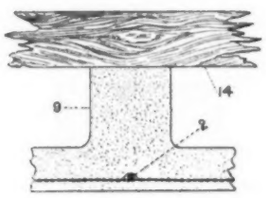


Fig. 4.—Section through a b of Fig. 2.

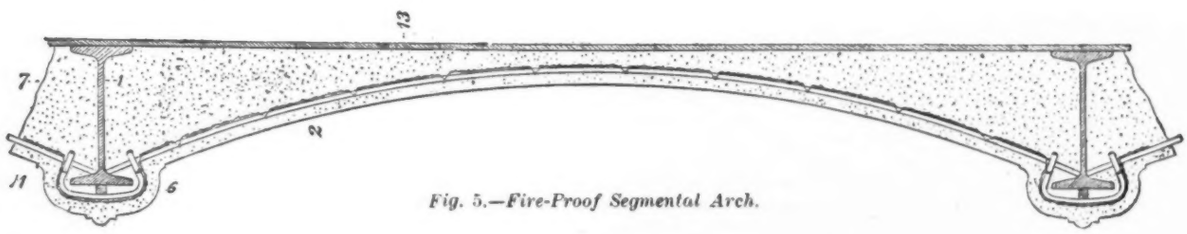


Fig. 5.—Fire-Proof Segmental Arch.

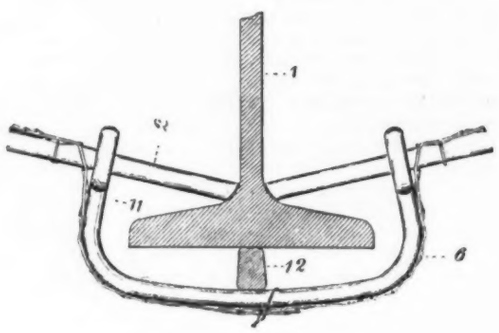


Fig. 6.—Enlarged Section of Beam of Fig. 5.

FIRE-PROOF CONSTRUCTION.

open on the under side (probably at or near the center of the slab or beam), the iron all the while slipping in the slab, and the crack opening wider, till the mass fell. The iron must be held rigidly in place to insure the best results.

the square foot. In segmental arches made by this method the safe load would only be limited by the strength of the beams and of the walls. This material is manufactured by the New Jersey Wire Cloth Company of Trenton, N. J., part coarse sand, and having five strips of flat iron $\frac{1}{4}$ x $\frac{5}{8}$ inch running lengthwise through it, the strips being punched at intervals to allow wires $\frac{3}{32}$ inch in diameter to pass through for anchors, the iron frame being imbedded near the bot-

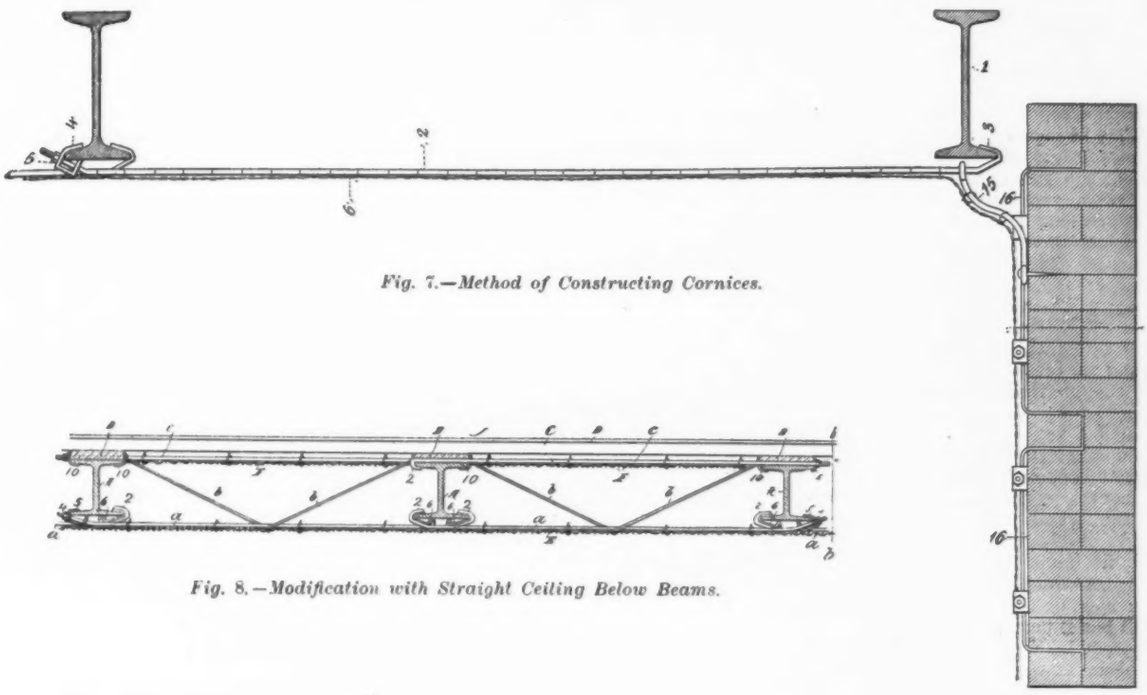


Fig. 7.—Method of Constructing Cornices.

Fig. 8.—Modification with Straight Ceiling Below Beams.

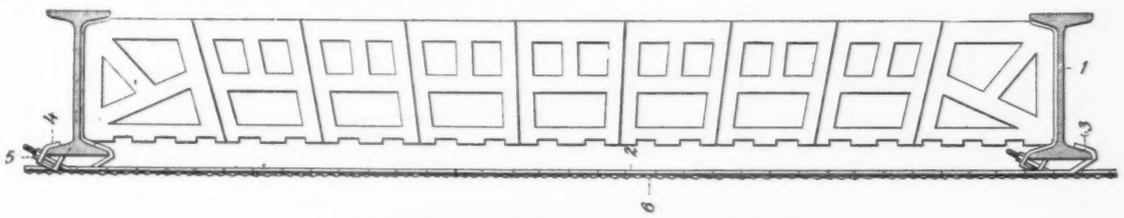


Fig. 9.—Lathing Applied to Beams to Make a Ceiling.

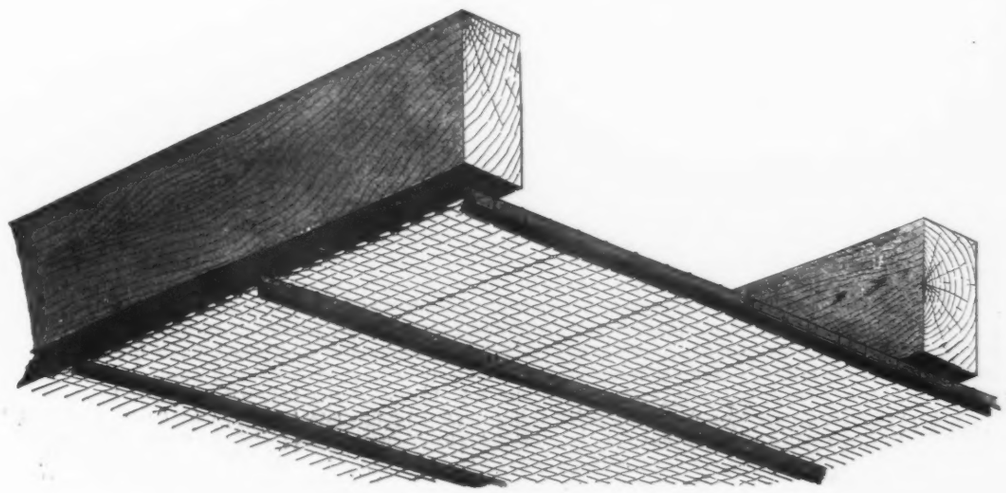


Fig. 10.—Ribbed Lathing to Wood Joists.

FIRE-PROOF CONSTRUCTION.

In the following we illustrate and describe a method of fire-proofing buildings by the union of concrete or mortar with iron wire and rods, supported by the beams and studding. This protects the iron beams and permits the construction of floors and ceilings impervious alike to fire and water and capable of sustaining, on flat arches with spans of from 4 to 8 feet, a load of from 100 to 300 pounds to

and is put on the market by the John A. Roebling's Sons Company of New York, Chicago and San Francisco.

Result of Tests.

Following is the result of a few of the tests made with slabs constructed of concrete strengthened by a framework of iron:

One slab, 12 x 24 x $1\frac{5}{16}$ inches thick, made of one part Portland cement to one

tom of the slab, which rested on 1-inch bearings, broke with a center load of 2750 pounds, or 3000 pounds for each foot of surface between bearings. None of the iron blades broke; the concrete crushed, the slab being so thin that the neutral axis was so near the top that the upper or compressive part or member of the slab was weaker than the iron strips which held the lower member together. The

deflection of the slab was about $\frac{7}{16}$ inch before it broke. Age of slab, 41 days.

Another slab, 54 x 54 x 3 inches thick, was constructed in a similar manner, but having 19 iron strips ¼ x 1 inch punched for ¼-inch wires. Composition of slab, one part cement, two parts sand. It was supported by bearing 3 inches at each end. This slab broke with a load of 36,375 pounds, equal to 2000 pounds per square foot. Deflection, ⅝ inch. All the iron strips broke on line of the wire nearest the center. Age of slab, 62 days.

Another experiment was made with a beam 7 x 14 inches in section and 10 feet 6 inches long. Through this, near the bottom, and running its whole length, were seven vertical blades; three were ¼ x 1 inch, and four ¼ x 1 inch, anchored with ¼ inch rods passing through holes in the blades. The composition of beam was cement, 1; sand, 1, for the 4 inches at top and bottom; and cement, 1; sand, 2, for the 6 inches of center. The beam was supported by 9-inch bearings. The weight required to break it was 53,654 pounds, all of the longitudinal blades breaking on the line of one of the cross wires. Deflection before breaking, $1\frac{3}{16}$ inches; deflection with load of 40,000 pounds, ⅝ inch; with 20,700 pounds, $\frac{1}{16}$ inch. Age of beam, five months. Had these last two slabs had the whole benefit of the tensile strength of the iron blades the concrete would no doubt have been crushed and the blades would not have parted, as there was iron enough to have stood twice the weight had it been properly applied. The holes made in the blades not only weakened them by the percentage of iron removed, but transferred the whole weight of the mass to what remained of the blades below the holes, giving them less than half the actual strength of the iron. Had half the amount of iron been used in the slabs in the shape of wire and rods rightly applied, the weight would not have been sufficient to part them.

Referring now to the drawings.

Construction.

Fig. 1 is a sectional view of two of the supporting beams of a floor, showing the ceiling construction and beam protection. The ceiling is attached to the beams 1 by rods 2. These rods are preferably made of hard-drawn iron or steel; at one end a hook, 3, is made to conform to the shape of the flange around which it hooks; the other end is screw-threaded; they are made long enough to reach from one beam to a little past the adjacent one, and are held in place by the hook 3 and by the clip 4, through which the rod passes, and which is made to hook around the flange of the beam, and is also arranged to offset the rod from the under side of the beam to provide an air space between the plaster and the beam. The clip is securely held in place and the rod drawn taut by the nut 5, Fig. 3. These rods are woven into or are otherwise attached to the metallic lathing 6, which constitutes the plastering surface, and may be either put up together in sheets or the rods may be all fixed in place and the lathing laced to them. The plaster may be put on in the usual manner, or a thin coat of concrete, 7, may be spread on from above; this may also be made to protect the beams and to imbed the hooked end of the rods and the clip. This imbedding of the hooks and clips would give the rod more power to resist tensile strain, as the concrete would prevent the straightening out of either under the strain, and would give the ceiling very nearly the full tensile strength of the rods. Rods made of No. 3 wire, or ¼ inch in diameter, and spaced 9 inches apart, would carry safely a ceiling load of 75 pounds to the square foot (the beams being 6 feet on center) without sufficient deflection to crack the plaster. If concrete were used in the construction, spread on from above, a finishing coat of plaster could be applied below, or the concrete could be smoothed off to give a finish.

Fig. 2 is of similar construction to Fig. 1, but is adapted to carry the floor load as well as the ceiling load. In Fig. 1 it will be noticed that the rods are the principal support of the ceiling, the wire lathing giving no supporting strength whatever. By carrying the ends of the sheets of lathing over the upper side of the lower flange of the beams, as at 8, Fig. 2, and imbedding them in concrete, there is added, when the concrete has become hard, the tensile strength of the longitudinal wires to the strength of the rods. The wires, however, depend entirely upon the concrete for the strength they add to the supporting rods. As has been noted in tests made with slabs, the thin slabs broke by the crushing of the concrete, and the thicker ones by the parting of the iron. This, Fig. 2, illustrates a method whereby the crushing strength of the concrete is made equal to, or greater than, the tensile strength of the wires and rods by the use of a minimum amount of concrete. The lower member is made of sufficient thickness to thoroughly imbed the rods and the wire lath and to lap well over the flanges of the beam, and is built up so as to fill between the flanges to protect the web. From this lower member are built up a succession of ribs, 9, at 2, 3 or more feet apart, as may have been determined upon (the ribs being easily and quickly made by placing light wood formers in position and pouring the concrete between), the width and depth of the ribs being determined by the amount of resistance to compression required.

Fig. 4 shows a section of this rib, with the wire lathing and one of the supporting rods embedded in the concrete, and one of the scantlings, 14, to which the floor is nailed resting on the top of the rib. The scantlings may either be laid at right angles to the ribs, as shown, or at right angles to the iron beams, the scantlings resting on the ribs with their ends wedged under the flanges of the iron beams to hold them in place.

Fig. 3 shows a half-size section of the lower half of a 10-inch beam with the supporting rods in position. The attaching clip 4 is more distinctly seen; and the manner of holding the rods offset from the beam, against the strain of the screw, by inserting strips or pieces of light T or other shaped iron, is shown at 10.

Fire-Proof Segmental Arches.

Fig. 5 shows the system of fire-proofing in the construction of segmental arches. The rods 2 are cut the required length to reach when bent into the required curve from web to web of the adjacent beams, their ends resting upon the flanges at their junction with the web; they are then either inserted between the meshes of the wire lathing 6 or otherwise attached to it, and the sheet, which would be 3 feet or more in width, would be bent to the curve required and sprung into place. A succession of these sheets placed side by side would fill the entire space from wall to wall, making a continuous network of iron wire and rods upon which the concrete could be spread from above without the use of any other support. The lower flanges of the beams would be covered by the wire lathing, attached to a succession of rods, 11, hooked over the arched rods 2, and held in place by the wedges 12, which are inserted between the beams and the rods. The plaster could be applied and an ornamental finish given to the under side of the beams at the same time the finish was being given to the under side of the arches.

Fig. 6 is an enlarged section of a beam, showing more clearly the arrangement of the rods to which the wire lathing is to be attached. By carrying the crown of the arch even with the tops of the beams and leveling up with the concrete a foundation is made upon which to lay tile floors, 13; or it may be arranged as in Fig. 3 for scantlings and a wood floor by making a flatter arch, so that the crown will be a few inches below the tops of the beams, and the scantlings laid on ribs of the concrete level with the crown and extending to the beams. The concrete at the crown of the arch in either case need not be more than 2 inches thick.

Fig. 7 illustrates the method of constructing cornices and of applying the ribbed lathing to the outer walls of buildings so as to leave an air space between the wall and the plaster. For the cornice is used a succession of light rods, 15, one end of which is attached to the rod 2 by a hook or an eye, and the other end to the wall by a nail with a washer under its head, the nail passing through a hook or an eye in the cornice rod and into the mortar between the bricks. The wire lath is then bent to the form of the rods and laced to them. In preparing the wall for the lathing a series of strips of flat iron, 16, is anchored to the brick work. They are spaced from 3 to 6 feet apart, as required, and are built in a regular line up and down the wall, care being taken to have the row at the corners at least an inch from the corner to give room for the hooks and clips of the supporting rods 2. The rods 2 are attached to the strips 16 the same as to the beams in Figs. 1 and 2, but they are not offset, the strips 16 giving all the offset required to secure an air space.

Fig. 8 is one of the modifications in the application of the ribbed lathing. This figure shows a method of construction with iron (or wood) beams whereby a straight ceiling is made below the bottom line of the beams, and a still further protection to the floor is obtained by a plastered surface extending from beam to beam, even with or above the top of their upper flanges. A, A, A are the beams, B planks resting on them and held in place by pieces of iron bent to about a right angle, a hole having been made in one of the angles through which a nail or spike may be driven into the edge of the plank; they are put on at intervals, one angle passing under the flange of the beam, as at 10. C shows the floor planks, and E the floor boards; *a* is a supporting rod for the ceiling and E the wire lathing attached to it for a plastering surface; *c* and F show the plastering surface on the line of the top of the beams; *b*, *b* are supporting rods or wires which may be used in very wide spaces to prevent any sag midway between the beams; they may simply pass over the beams and under the rods, as shown in this figure, or they may hook over the flange of the beam and into the rod.

Fig. 9 illustrates the lathing as applied to beams to make a ceiling where common or hollow brick arches, either segmental or straight, have been made to fill the space between them. Many architects will not allow a ceiling to be made directly on the bricks, on account of the liability of the plaster to drop off or become filled with unsightly cracks. In such cases a series of angle irons are bolted to the under side of the beams. To these angle irons the wire lathing is laced, and the plaster is applied to the lathing. By the use of the supporting rods about 50 per cent. of the cost and delay of this method is saved, and a safer and truer ceiling is made than with the angle iron.

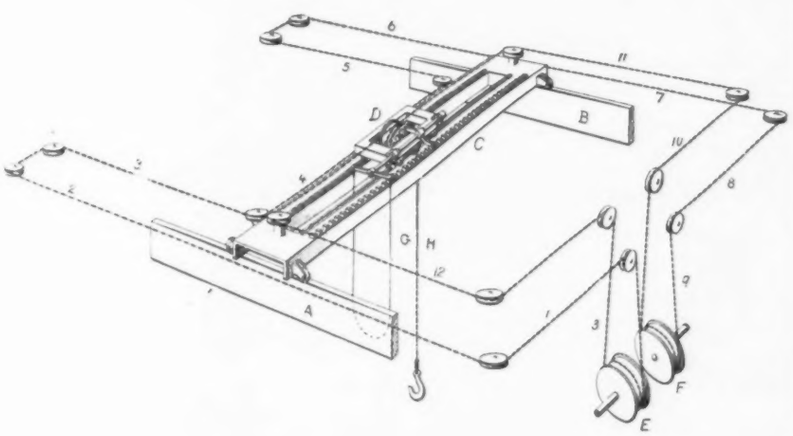
Fig. 10 illustrates the application of ribbed lathing to wood joists. The ribs, in this case, may be made of round iron, or of sheet iron cut into strips about 1 inch wide, and bent into V shape, longitudinally. The rods or strips are woven into the meshes of the wire cloth at intervals of 7½ inches. Half of the wires are on one

side of the rib and half on the opposite side, alternately, making it impossible for them to become detatched. These ribs project entirely on one side of the lathing, leaving the other a smooth, even surface upon which to spread the plaster. The lathing is secured to the wood by staples which embrace the rods and are driven into the joists or studding, if solid round rods are used ; or, if V strips are used, by nails driven through the strips and into the wood, or by staples over the strips.

(To be concluded.)

The Dixon Traveling Crane.

The Dixon crane belongs to the movable cable type, in which the movement of the bridge and trolley is occasioned by cables which act to positively pull them in the desired directions. The movements of the bridge or trolley, and also the lifting and lowering of the load, are accomplished, in the crane illustrated, by a single cable common to the bridge and trolley, to which cable movement is imparted by means of two driving drums, constituting a motor independent of the crane structure and preferably located at the "initial" end of the line. These drums E F are so arranged that they may



THE DIXON TRAVELING CRANE.

be rotated together in either direction or oppositely in either direction. They actuate a single continuous endless cable, the course of which may be found by following the numerals from 1 to 13. It will be observed that the cable traverses the bridge twice, the portion 11 12 encircling a windlass drum on the trolley, and the portion 4 extending along the bridge without attachment to the trolley, and running freely on sheaves attached to the respective ends of the bridge.

In order to move the bridge toward the driving drums, the latter are rotated together in the proper direction to exert a pull upon the divisions 11 12. In this movement of the bridge the trolley is stationary with respect to it, being subject to the equal opposite pull of the divisions 11 12. The bridge is moved in the opposite direction when the motion of the drums is reversed, the pull being then through the cable divisions 1 8. In a word, to move the bridge, both drums are rotated together in the proper direction, as if they were one.

The windlass drum on the trolley is normally locked against rotation by a detent mounted on the trolley and engaged with a toothed face on the end of the windlass drum. To move the trolley toward the right the drum F is rotated so as to pull upon the cable 11 and the drum E rotated in the opposite direction in order to effect release upon the cable 12. The trolley moves to the left, when the reverse of this rotation of the drums takes place. In the movement of the trolley the bridge is stationary. To occasion the lifting or lowering of a load the detent mounted on the trolley and normally locking the windlass drum against rotation may be retracted by a pull upon the pendent operating cord G, whereupon it drops into a notch of a rack extending along the bridge in proximity to the trolley track, and thereby locks the trolley against travel longitudinally of the bridge. The division 11 12 of the cable being, as explained, wrapped around the windlass drum, pull exerted upon the cable 12 by the rotation of the drum E in one direction and release of the cable 11 by the rotation of the drum F in the opposite direction will occasion the rotation of the windlass drum of the trolley and the taking up or winding upon the windlass drum of the depending rope H to which the load is attached. When the load has been sufficiently elevated the detent is rocked forward against the clutch face of the windlass drum to lock the drum against further rotation, and thereupon further pull upon the rope 12 and release of the rope 11 will occasion the travel of the trolley to the left, as described. To lower the load the detent is again thrown back into engagement with the rack on the bridge and the drums rotated to release the rope 12 and take up the rope 11. This crane is the invention of F. N. Dixon, 903 Walnut street, Philadelphia.

Treasury Decisions.

Nail rods—Steel horseshoe nail plates dutiable as.

Before the United States General Appraisers at New York, May 23, 1892. In the matter of the protests 22,268*a*-42,125 of Naylor & Co., against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain so-called "shaped steel," imported per Didam, July 15, 1891. Opinion by Wilkinson, General Appraiser.

The goods are pieces of steel about 10 feet long, 2 inches wide, with both sides slightly hollowed, so that the metal is $\frac{3}{16}$ inch in thickness on the outer edge, and $\frac{1}{4}$ inch at the center.

The merchandise was assessed for duty at $\frac{8}{10}$ cent per pound as shaped steel valued at more than 1.4 cents per pound, under paragraph 146, N. T., and is claimed to be dutiable as nail rods at $\frac{6}{10}$ cent a pound under paragraph 147.

The pieces of steel are especially designed as material for the manufacture of horseshoe nails, but the appraiser reports that they are horseshoe nail plates, and not commercially known as steel rods.

The board, however, is of the opinion that the provision in paragraph 147 for nail rods, whether round oval, flat, square, or any other shape, is broad enough to cover the merchandise in question.

We find that the goods are nail rods not smaller than No. 6 wire gauge, and valued at less than 3½ cents per pound.

The claim of the importers is sustained accordingly.

Files.

Before the United States General Appraisers at New York, May 23, 1892. In the matter of the protests, 15,305*a*-30,810, of L. H. Keller & Co., against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain files, imported per Aller, May 26, 1891. Opinion by Wilkinson, General Appraiser.

The goods are files more than 4 inches and less than 9 inches in length. They were assessed for duty at 75 cents a dozen, under paragraph 168, N. T., and are claimed to be dutiable at 35 cents per dozen, under the same paragraph.

We find that the files are commercially known as 4-inch files, but that by actual measurement they exceed 4 inches in length.

Paragraph 168 prescribes a duty of 75 cents a dozen for files over 4 inches and under 9 inches in length. We are of the opinion that the provision is for lineal measurement, and does not refer to commercial terms.

The decision of the Collector is hereby affirmed.

Carriage Bolts and Step.

Before the United States General Appraisers at New York, May 23, 1892. In the matter of the protest, 16,069*a*-16,014, of Adele Peugeot, against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain carriage bolts, imported per Normandie, January 22, 1891. Opinion by Wilkinson, General Appraiser.

The goods invoiced as "Boutons de tirage," are of four kinds. Nos. 1 and 2 are wrought iron bolts about ½ inch in diameter and 6 inches long. There is a thread and nut at one end of the bolt, and at the other there is a head of the kind designed and commonly used for slipping on and holding a carriage harness trace. No. 3 is simply a bolt with a nut at one end and a common flat circular head at the other. No. 4 appears to be a carriage step, to which a heavy bolt has been welded.

The merchandise was assessed for duty, under paragraph 215, N. T., at 45 per cent., and is claimed to be dutiable at 2¼ cents per pound, under the provisions of paragraph 158, for "bolts, with or without threads or nuts."

We find:

1. That Nos. 1, 2 and 3, representing lines 1, 2 and 3 on the invoice, are bolts with threads and nuts, and the claim of the importer that the said bolts are dutiable at 2¼ cents a pound is hereby sustained.

2. That No. 4 is not commercially known as a bolt.

With the exception named, the Collector's decision is affirmed.

Structural Shapes of Iron.

Before the United States General Appraisers at New York, May 23, 1892. In the matter of the protest, 16,156*a*-1275, of J. Plentyt against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain iron bars, imported per Wyoming, November 5, 1890, Opinion by Wilkinson, General Appraiser.

The merchandise consists of wrought-iron bars from 5½ to 13½ feet in length, with an average weight of about 22 pounds each. They were assessed for duty at 1.1 cents a pound under paragraph 136, N.T., and are claimed to be dutiable at $\frac{9}{10}$ cent a pound, under paragraph 137.

The bars are rolled into shape for use in the Helliwell system of building glass roofs and skylights.

We find that they are structural shapes of iron, and hold that they are provided for under paragraph 137.

The claim of the importer is sustained accordingly.

Composition Metal—Certain Yellow Metal in Sheets Not.

Before the United States General Appraisers at New York, May 23, 1892. In the matter of the protest, 20,450-32,521, of Piper, Doremus & Co., against the decision of the Collector of Customs at New York as to the rate and amount of duties chargeable on certain manufactures of metal, imported per Salle, June 27, 1891. Opinion by Wilkinson, General Appraiser.

The merchandise is a bright yellow metal made into very thin sheets or foil. It was assessed for duty at 45 per cent., under paragraph 215, N. T., and is claimed by the appellants to be dutiable at 1 cent a pound, under paragraph 192, as a composition metal of which copper is a component material of chief value.

We find, 1, that the merchandise is a composition metal of which copper is the component material of chief value; 2. That it has been carried by processes of manufacture beyond the character of metals known commercially as composition metals, and that it does not belong to the classes of metals known in trade as composition metals.

Paragraph 192 provides for "old copper fit only for remanufacture, clippings from new copper and all composition metal of which copper is a component material of chief value." We hold that the paragraph is no more applicable to the merchandise in question than it is to bronzes or other manufactures of copper alloys.

The decision of the Collector is hereby affirmed.

Pocket Knives.

Before the United States General Appraisers at New York, May 23, 1892, in the matter of the protest, 12,989b, of W. B. Belknap & Co., against the decision of the Surveyor of Customs at Louisville, Ky., as to the rate and amount of duties chargeable on certain knives imported per Spree, November 25, 1891. Opinion by Wilkinson, General Appraiser.

The goods are knives which were assessed for duty as pocket knives under paragraph 165, N. T. The appellants claim that the articles are agricultural implements, dutiable at not more than 45 per cent.

A sample of the merchandise in question is a well-finished pocket knife, not much larger than an ordinary jackknife, with one folding blade. The blade is curved and is evidently intended for budding or pruning. The knife, however, is intended to be carried in the pocket, and we find that it is a pocket knife, and we hold that it is provided for in paragraph 165.

Had there been good grounds for the importers' dissatisfaction, the protest must have been and is hereby overruled as indefinite, pointing out neither a positive rate of duty nor the clause of the tariff under which claim is made. The decision of the surveyor is affirmed.

Bowie Knives.

Before the United States General Appraisers at New York, May 24, 1892, in the matter of the protest, 20,951a-45,851, of Wiebusch & Hilger against the decision of the Collector of Customs at New York, as to the rate and amount of duties chargeable on certain bowie knives, imported per Wisconsin, August 27, 1891. Opinion by Wilkinson, General Appraiser.

The goods are bowie knives. They were assessed for duty as hunting knives under paragraph 167, N. T., and are claimed to be dutiable either as side arms, at 35 per cent., under paragraph 166, or as manufactures of metal at 45 per cent., under paragraph 215.

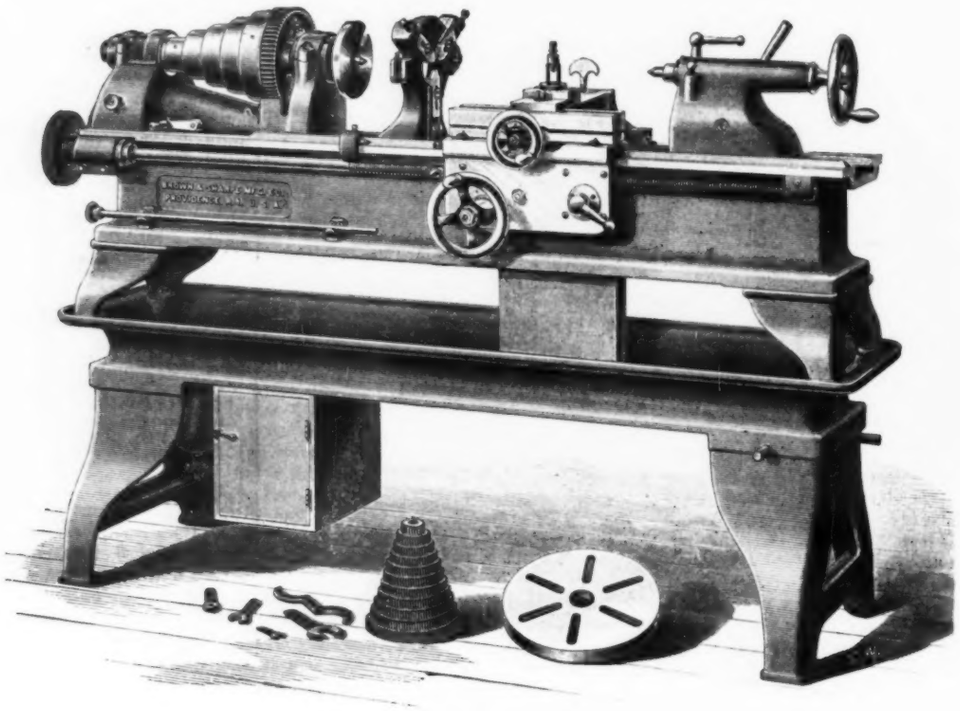
We find that the knives in question are not side arms, and that they are hunting knives. The decision of the Collector is affirmed accordingly.

The roller cotton compress is superseding old methods of baling cotton both on plantations and at shipping points.

Brown & Sharpe Engine Lathe.

In the 13-inch engine lathe here shown the spindle and boxes are of steel, hardened, ground and lapped, thus securing round bearings, accuracy in alignment and the greatest durability. The front box has means of compensation for wear. The thrust is taken at rear end of spindle, the bearing parts being hardened and ground. The hole through spindle is $\frac{1}{32}$ inch diameter. The cone has five steps for 2-inch belt and is strongly back geared. The back gears are placed under the head stock and are operated by a lever on the front.

The carriage is weighted and moves upon a V on front and upon a flat way on the back of the bed. It is provided with a friction feed operated by a simple lever device, on the left of the apron, by which the engagement and disengagement of the friction is made certain. It is also provided with an automatic stop by which the feed may be released at any desired point. Stops are permanently attached to the carriage and can be easily adjusted for cutting inside and outside threads. The ways and all flat bearings are accurately scraped for alignment.



BROWN & SHARPE ENGINE LATHE.

The screw is cut with great accuracy, and with the change gears all threads from 3 to 16 and nearly all from 16 to 48 per inch can be cut by direct gearing. Provision is also made for compounding the gears, thereby greatly increasing the range in the number of threads that can be cut. The split lead nut is opened and closed by a lever on the front of the apron. The foot stock is secured to the bed by a cam fastening, which can be quickly operated. The center rest is so constructed that the set screws for the jaws are entirely out of the way of the carriage when in any position. The hand wheels operating the carriage, cross-feed screw and foot-stock spindle are graduated on their hubs. The lathe is mounted on a tank table provided with a reservoir to collect oil, &c. This lathe will swing over bed 13 inches; over carriage, $5\frac{1}{2}$ inches, and will take 33 inches between the centers.

The swivel of the taper attachment is graduated to read degrees or taper in inches per foot. The attachment can be used in any position between the centers, and admits of any taper up to 4° or 2 inches per foot being turned; length of bed, 5½ feet. The lathe weighs, prepared for shipment, about 1650 pounds, and occupies a floor space 24 x 70 inches. It is made by the Brown & Sharpe Mfg. Company of Providence, R. I.

THE WEEK.

The Garbage Crematory Company in Buffalo have bought $20,000 worth of new machinery and will increase the capacity for consumption to 50 tons a day.

The formation of a linseed oil trust, while it enabled a number of unprofitable concerns to sell out to advantage, had the effect in course of time to bring into existence new competitors, so that the scheme is a failure. More than this, the increased cost of flaxseed entails the loss of a large portion of our export trade in manufactured paints and other articles in which linseed oil enters largely as a constituent.

The Poughkeepsie Bridge will be sold to day under foreclosure, and it is expected that the new company will be organized and ready for the transfer of the property to the Reading management early in July.

The city of Manchester, England, purpose erecting a technical school building that shall have no equal in the world.

Shops for the Illinois Central road are in course of erection at Burnside, near Chicago, upon which $500,000 will be expended this season and $2,000,000 when all is finished.

The Jersey City terminal station of the Pennsylvania Railroad is now almost entirely complete, except the mechanical apparatus providing for the movement of passengers between the bridge and upper deck of the ferry boats, which is somewhat intricate because of the necessity of adjusting it to the varying hights of the tide. The shed, which attracts special attention, is built entirely of iron, is 652 feet long, 256 feet wide, and 85 feet in hight above the tracks, and covers nearly 4 acres.

Canadian bankers in their annual statements to their stockholders refer to bountiful crops of the past year, which only in part have been marketed and, therefore, are not yet felt in the trade. In lumber the stock exceeds that of the previous year, and there has been an excellent market with some advance in the United States. On the other hand the waning of the real estate boom and decrease in building operations causes much dissatisfaction.

La Liberté says that commercial conventions on the basis of the French minimum tariff will shortly be concluded between France and Honduras, and between France and other South and Central American republics.

The export of over $7,000,000 gold in a single week would excite comment at any time. Just now it is regarded as of unusual importance in some quarters because of the compulsory silver coinage law. It may be well to remember that in May last year the exports of gold were $30,500,000, and in June nearly $16,000,000, so that there is nothing surprising about the efflux now in progress. From February to July last year, inclusive, the exports reached $77,000,000, as against $34,000,000 thus far this year.

San Francisco papers make some reference to the reduced rates of freight by vessels going round the Horn between that port and ports on the Atlantic Coast. Competition by sea must be unusually severe, judging from the fact that very recently as many as 29 vessels, comprising 50,000 tons, were *en route* or on berth for San Francisco, all but ten of them hailing from New York. The San Francisco *Commercial Herald* says: "Freights on general cargo from New York have been reduced to $7 per ton, or about ¼ cent per pound. This leaves, say, 1 cent in favor of this city on all goods that do not lose in value by a three or four months' sea voyage. In these this city will immediately become an entrepot. The same is true of goods shipped back to New York. As to merchandise that must needs be sold at a certain time or not at all it must needs be brought overland at any figure that the public will pay. Here, again, houses of very large capital have an undoubted advantage." There are now five shipping firms in the trade around the Horn, including two recent additions.

New York and Liverpool are both enlarging their docks to accommodate vessels 700 feet in length.

Taking the whole South together, crop reports have seldom been more thoroughly satisfactory. Of the wheat and corn regions the same remark holds true.

While Venezuela has Dr. Villegas for a new President, there is hard fighting in the State of Matta Grosso, in Brazil, with "no quarter" on either side.

Says the New York *Commercial Advertiser:* "Is the supply of silver infinite that the silver men should be so wasteful with it? Why the extravagance of putting 69 cents in a 100-cent dollar? If 69 be equal to 100, what's to prevent 25 from equaling 69? Why, in one word, put more than 1 cent's worth of silver in a dollar? Why waste 68 cents of so precious a metal?"

While Louisiana promises a sugar crop larger than last year's, the crop in Matanzas has been badly reduced by wind and flood.

The drought in Texas on the lower Rio Grande frontier and in northern Mexico continues with undiminished severity.

Judge Daly, in an action brought by the Sinking Fund Commissioners, cuts the appraisement of the Union Ferry Company's property down to $3,229,401, a reduction of $573,599.

The new Stewart hotel to be erected on Broadway and Forty-first street will be fire proof and cost $300.000. Iron girders and columns will be bolted together in the frame work to secure absolute rigidity.

By the rules of the new building law of Boston just passed by the Legislature no building can hereafter be erected in the city of Boston in excess of 70 feet in hight unless it is built throughout of non-inflammable material, with floors constructed of iron or steel beams filled in with terra cotta or other masonry arches. The maximum limit of hight is 125 feet, and the fire-proof warrant must be backed up by facts.

The investment of £4,000,000 made by the British Government in the Suez Canal shares will in a year or two, according to Mr. Goschen, be worth £19,000,000, which proves it to have been an excellent stroke of business as well as of diplomacy.

The Western Iron Ore Association are much incensed by the removal of the lights in St. Mary's River and ask that they shall be restored.

During this calendar year the imports of Russian wheat into the United Kingdom were 90,000 hundredweight, against 6,243,000 hundredweight last year. The imports from India were 4.447,000 hundredweight, against 3,431,000 hundredweight in 1891. The imports of wheat from the United States, which was the principal source of supply, were 11,267,000 hundredweight, against 5,727,000 hundredweight.

At the suggestion of the president of the Sugar Trust the wholesale grocers of Pennsylvania, New Jersey and Delaware have formed an association to sustain prices and in return are entitled to a rebate.

It is reported that in about three months actual construction will begin on the new coast line railroad, the Norfolk, Wilmington & Charleston. It is contemplated to have the line completed through from Norfolk to Charleston, some 352 miles, in about a year and a half, and the 250-mile branch from Kingston, N. C., to Columbia, S. C., a year later. The capital stock of the company is $10,000,000, and the authorized bonded debt $10,000,000.

Two locomotives for Sweden have just been shipped from the Baldwin Locomotive Works. They are of the mogul type, with 16 x 24 cylinders, and cost $9000 each, delivered. The weight of each engine is 68,000 pounds.

The trades school of the Master Builders' Exchange in Philadelphia has graduated its second yearly class, 41 young men receiving certificates.

The bursting of a boiler on one of the new French cruisers killed 15 men.

The Germans have had three severe military reverses since they started their trading colony on the east coast of Africa.

The big leather firm in Boston, Allery Brothers & Place, who failed a year ago for over $500,000, have paid their creditors in full with 6 per cent. interest.

Philadelphia desires to encourage foreign commerce; yet two steamers have been waiting in the Delaware River since early in the month for want of wharf accommodation.

American petroleum has suffered in Japan for a year past by Russian competition.

During the month of May there were launched from Scotch shipbuilding yards 32 vessels, aggregating 26,968 tons, as compared with 26,590 tons in the corresponding month of last year.

A new passenger and freight line from Philadelphia to Liverpool is contemplated by the Reading Railroad Company in addition to the freight line to London already running.

Recently there was a notice of filing of a judgment against the National Chuck Machine Company, the predecessors of the National Chuck Company. As this is likely to cause some comment, it should be noted that this judgment in no way affects the latter company, which is controlled by William Whitlock, who bought the plant and effects from the receiver of the National Chuck Machine Company, and is conducting the business under the style of the National Chuck Company. They are moving their factory to 132d street and Park avenue, New York City, where they will be in operation in a few days with improved facilities.

D. C. Templeton, widely known in the Northwest through his connection with the plow and other agricultural implement interests, has accepted the agency for the Ahquippa Steel Company of Pittsburgh, and established an office in room 939, The Rookery, Chicago. The company will manufacture Plate and Sheet Steel, Soft Center Plow Steel and other Steel Products.

The Iron Age

New York, Thursday, June 30, 1892.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

The Copper Combination.

On the whole, the comments made by those authorities in the copper trade who are not directly connected with the producers are unfavorable to the international agreement. which to some extent partakes of the character of the "gentlemen's understanding," at one time conspicuous in another leading American industry. The great mining companies on both sides of the Atlantic have come together and have practically decided not to crowd the market too much. According to English advices, the European companies, representing about one-half the total production, have agreed to place a limit on their production, in some cases reducing by 5 per cent. that of the year 1891, while in others they have been allowed an increase, amounting in one important instance to 10 per cent. We believe that this deals practically with the large Spanish mines. At first the Europeans held out for some promise that the exports of American copper be placed at a certain maximum. This, as we understand it, they failed to carry, so that they must be content with hoping for the best in view of the restriction of the American mines. It is reported that nine companies, controlled by five interests, have undertaken to keep their output for one year from July 1 down to 226,000,000 pounds. These are the Anaconda with 75,000,000 pounds, the Calumet & Hecla with 60,000,000, pounds, the Bigelow-Lewisohn with 65,000,000 pounds, the Parrot with 14,000,000 pounds and the Quincy with 12,000,000 pounds. This includes the majority of those who place large quantities of copper abroad. As we pointed out some time since, these interests made in 1891 204,000,000 pounds, so that the "restriction" did not look very formidable.

We believe, however, that the record of the first six months of the current year will show that as a matter of fact a yearly product of 226,000,000 pounds is very much below the rate which they have been running at, and that full work would carry the figures higher still. We have the data to estimate the product for the first six months of 1892 of the Calumet & Hecla, Quincy, Tamarack, Osceola and Kearsage on Lake Superior, and the Anaconda, Boston & Montana and Parrot, at not less than 140,000,000 pounds. For the greater part of the time the Butte & Boston was idle. With that plant going and all the others running at full capacity, the interests alluded to would put on the market during the year beginning July 1, 1892, not less than 300,000,000 pounds of copper. If they adhere to their agreement to produce only 226,000,000 pounds, they will keep the European market from a very dangerous collapse.

At first blush this arrangement of a few interests, leaving out very important groups of mines, may seem a very weak one. But it must not be forgotten that they are practically the ones which are the heavy exporters. Really the only great concession has been made by the largest Montana concern, and generally speaking, the producers of the Butte district are in a position where it is imperative with them to export largely. There are not in this country now refining facilities large enough to take care of all the Montana matte made, not to speak of the material which would be produced running full. A large share of the product must go abroad, and if the American mines were to go on at their full rate they would swamp the European market, which would very seriously react on our own.

It is well known that this condition of affairs will not continue indefinitely. The leading Montana concerns are now getting ready to do their own refining by building electrolytic plants. The large establishments which this calls for cannot be created in a day; in fact, years may elapse before they cease to ship their matte to foreign countries. But the day is coming when the exports of copper matte will be as unimportant as those of ore now are, and American copper will go out in ingots, wire bars and slabs. Then the American mines will be the absolute dictators in the world's copper markets.

Indorsing the World's Fair.

The managers of the World's Fair at Chicago have accomplished a neat stroke of business in securing the indorsement of the two great political parties to their appeal for national aid. The Republican National Convention at Minneapolis, on the 9th inst., adopted the following resolution as a part of their platform:

> The World's Columbian Exposition is a great national undertaking, and Congress should promptly enact such reasonable legislation in aid thereof as will insure a discharging of the expense and obligations incident thereto and the attainment of results commensurate with the dignity and progress of the nation.

The Democratic National Convention at Chicago incorporated the following plank in its platform on the 22d inst.:

> Recognizing the World's Columbian Exposition as a national undertaking of vast importance in which the general Government has invited the co-operation of all the powers of the world, and appreciating the acceptance by many of such powers of the invitation so extended, and the broad and liberal efforts being made by them to contribute to the grandeur of the undertaking, we are of opinion that Congress should make such necessary financial provision as shall be requisite to the maintenance of the national honor and public faith.

These utterances would appear to commit both parties unequivocally to the support of either the bill formulated by the World's Fair Committee of the House of Representatives or something akin to it. Such an expression of popular approval as each party has thus made would seem strong enough to overcome any fear that the body of the people are opposed to a liberal appropriation for the fair. Members of Congress may, it is true, regard these conventions as irresponsible organizations, while they, on the other hand, are especially intrusted with the management of the affairs of the Government. But it would hardly be possible to get the sense of the people on this question as satisfactorily as through these two great conventions. We have here every section of the entire country represented, and by both parties. The unanimous adoption of the resolutions in both cases would therefore appear to have very great weight.

Cost of Pig Iron.

With so many furnaces out of blast all over the country, it seems almost ridiculous to speak of profits in manufacturing pig iron. Most furnace managers will say that profits are out of the question, and that losses would be the correct term to use in connection with the results of the business. The logical deduction from the numerous idle furnaces is, of course, inability on the part of owners to figure out a profit on operating. This is undoubtedly true in the case of a large majority of the idle furnaces, and perhaps with some in operation if the facts were known. Yet it must be admitted that among those who are now making pig iron less complaint is heard of inability to produce at prevailing prices than of marketing it when produced. We are not violating confidence when we say that figures of cost which have been given us by furnacemen in various localities, East, West and South, show that a fair return could even now be realized on their output of pig iron if the market would only take all of it. In corroboration of this statement we have but to refer to the recent annual report of the Tennessee Coal, Iron & Railroad Company, who made more money in their fiscal year ending April 1, 1892, than in any preceding 12 months of their existence; to the statement of the cost of anthracite pig iron published in *The Iron Age* of May 26, and to the blowing in of furnaces in different parts of the country within the past month. Furnaces once blown out would hardly be started up at such a time as this if their owners did not see their way clear to the production of pig iron at a profit.

The situation is a curious one in this respect. Prices have fallen to figures previously unknown in the history of the American iron trade, but economies have evidently been introduced which have kept pace with the downward tendency of prices Ores are lower, freights on raw materials have been modified to some extent, labor has been reduced, but not seriously cut, and concessions on fuel are claimed to have been made by coke manufacturers. Those who are dependent on the Connellsville coke region for their fuel supply have not been favored with a reduction, but are so urgently demanding it, and with so much justification on their

part, that it is difficult to see how their claims can be refused. The adjustment of such inequalities as this will serve to put pig-iron makers on a better basis to endure the era of low prices now on us.

Persistent attempts are being made to create the impression that the men in the rolling mills are being ground to the level of wretchedly paid laborers by their grasping employers. Wage percentages are being paraded to enlist sympathy, while no reference is made to the circumstances which have gradually worked up the pay of tonnage men in spite of the constant decline in selling prices. A few figures will best tell the story. At a well-equipped mill in western Pennsylvania, working under the Amalgamated scale, the following wages were paid in the finishing department during the year 1891:

Seven-Inch Mill, 422 Turns.

	Total.	Per turn.
Roller	$5,826.98	$13.81
Heater	2,914.49	6.90
Catcher	1,457.24	3.45
Rougher	1,457.24	3.45

Ten-Inch Mill, 468 Turns.

	Total.	Per turn.
Roller	$9,248.44	$19.76
Heater	4,624.22	9.88
Catcher	2,312.11	4.94
Rougher	2,312.11	4.94

Guide Mill, 514 Turns.

	Total.	Per turn.
Roller	$7,160.32	$14.93
Heater	3,580.16	7.47
Catcher	1,790.08	3.73
Rougher	1,790.08	3.73

Bar Mill, 276 Turns.

	Total.	Per turn.
Roller	$2,146.66	$7.78
Heater (two furnaces, 552 turns)	3,220.00	5.83
Catcher	1,180 66	4.28
Catcher's rougher	843.33	3.05
Rougher	1,073.33	3.90

In all, the crews on these four mills were paid $52,939.45 during the year, and the earnings of each per turn certainly show that what is really not a very high order of skilled labor is exceedingly well paid.

The rainfall in Chicago and vicinity during the present month has been phenomenal up to the 25th inst. The amount of precipitation in June was 9½ inches. This surpasses all previous records for that district, the monthly average rainfall being but 2½ to 3 inches. In fact, the June record would for the time place Chicago in the list of localities in which the rainfall is excessive. The rain storms were accompanied by peculiar and destructive electrical phenomena and in frequent instances by violent winds of a cyclonic character. Great damage has been wrought by the flooding of basements, the bursting of sewers, &c., while outdoor work was seriously interrupted. The month of May was also rainy, stormy and destructive, the total downpour of that month having been nearly 7 inches. The lake region has not had its usual amount of rain for several years, and 1892 seems likely to bring up the average at once, much to the discomfort of those who live and conduct business operations in that section.

CORRESPONDENCE.

S. D. Brewer and the Hussey Re-Heater Steam Improvement Company.

To the Editor: It having been brought to my attention within a day or two that printed matter is being circulated wherein my name appears as general manager of the Hussey Re-Heater & Steam Improvement Company, I would state that I have not been connected with that company for two years.

For your further information I would advise you as follows:

In 1888 Mr. Hussey patented two reheaters for reheating exhaust steam. These reheaters were manufactured and sold by Mr. Donaldson and Mr. Hussey conjointly; afterward by Mr. Donaldson, and in 1884 by the Donaldson Heater Company, of which I was secretary. Within a few months I, individually, secured the exclusive right to manufacture and sell them.

In 1888, on the strength of certain promises, I organized, with others, the Hussey Re-Heater & Steam Plant Improvement Company, of which I was general manager. But after two years with the company I resigned as its general manager, at the same time withdrawing such interests as I had, and since then I have had no further connection with it.

I intended at the time to open an office for the continuation of my business, but while making the necessary arrangements I concluded to spend a short time in the electrical business, since I knew very little about electricity and realized that it was to play an important part in the steam business. I entered the Edison Company, and only recently left it.

How long my name has been in the manner mentioned I do not know, but I wish, even at this late day, to state that I am not interested, either directly or in directly, in any business except my own.

Very truly yours, S. D. Brewer,
Hussey Re Heater System.
New York June 18, 1892.

The Magnetic Separator Suit.

To the Editor: In the issue of *The Iron Age* of June 23 we noticed a communication from the International Ore Separating Company by Harvey S. Chase, treasurer, denying the fact of a suit having been brought by the Magnetic Separator Company against the International Ore Separating Company for infringement of certain patents on ore separators and processes of separating ores owned by the former company. Notwithstanding the denial, the fact remains that suit was brought by the Magnetic Separator Company in the United States Circuit of New Jersey, as stated in your issue of June 9 or 16, the complaint having been filed with the court at Trenton, N. J., and the subpœna issued May 16, 1892.

The motive of the defendant company in denying the fact of the suit having been brought is not fully apparent to us. Some difficulty has been encountered by the United States Marshal in obtaining personal service, but such service cannot long be evaded. We have taken pains to procure certified copies of the bill of complaint and subpœna from the files of the court at Trenton, N. J., and herewith inclose the same to you.

Very truly yours,
The Magnetic Separator Company,
By C. M. Ball, Manager.
New York, June 24, 1892.

The regular meeting of the Western Pennsylvania Engineers' Society of Pittsburgh was held in that city on Monday evening the 20th inst., Capt. A. E. Hunt in the chair. W. L. Scaife of Pittsburgh read a paper on Rail Joints of Railroads. The paper was descriptive of the various styles of rail joints in use on different railways and of the different uses made of the angle irons used at the joints. At the conclusion of the reading of Mr. Scaife's paper the members present indulged in quite a discussion of it. No further meeting of the above organization will be held until September next.

The Sheet Scale Adopted.

As we announced in *The Iron Age* of last week, the Conference Committees representing the Amalgamated Association of Iron and Steel Workers and the Iron and Steel Sheet Manufacturers' Association have agreed on a wage scale, governing wages in sheet mills for 1892–93. Some concessions were made by both sides, and a scale had finally been adopted. A number of changes have been made, which are indicated in the scale as printed below:

Sheet Mill Scale.

It is agreed that at a 2-cent Western Iron Association's Card, the prices for rolling on a sheet and jobbing mill shall be as follows, with 2 per cent. additional for each one-tenth advance of said card, and 2 per cent. decline for each deduction of one-tenth from said card:

Gauges.	Price for rolling on a 2-cent card, per ton, 2,240 pounds.
No. 8 and heavier	$3.60
Nos. 9 to 11	4.00
Nos. 12 to 14	4.80
Nos. 15 to 17	5.60
Nos. 18 to 21	6.80
Nos. 22 to 24	8.00
Nos. 25 and 26	8.80
No. 27	9.60
No. 28	10.40
No. 29	11.20
No. 30	12.00

AMALGAMATED ASSOCIATION OF IRON AND STEEL WORKERS' WEIGHT OF GAUGES FOR IRON AND STEEL PLATES AND SHEETS.

No.		No.	
16	2.50	24	1.00
17	2.1875	25	0.90
18	1.875	26	0.80
19	1.71875	27	0.72
20	1.5625	28	0.64
21	1.40625	29	0.56
22	1.25	30	0.50
23	1.12		

1. When sheets are rolled lighter than the gauge they represent the mean between that and the next lighter gauge to be taken for the rolling price.

2. Ten per cent. added on all steel, by whatever name called, No. 23 and lighter.

3. All sheets, No. 18 and lighter, over 32 inches wide, 10 per cent. extra on above prices.

4. All sheet iron or sheet steel shall be weighed by the company after being sheared and opened.

5. Twenty per cent. added for changed iron and steel.

In paragraph 6 the words "except shearman" have been added, and paragraphs 6 and 7 in the new scale read as follows:

6. For pickle finish or pickled in the rough, either iron or steel, worked on sheet mills, 33⅓ per cent. extra shall be added for the same, except shearman.

7. All iron or steel rolled on sheet or jobbing mills, sheared to patterns of irregular shapes or circles, shall be paid for at the weight of the square sheet. This clause shall not apply to boiler and tank heads or any plates or sheets where the waste does not exceed 10 per cent. above square sheets; but where the waste does exceed 10 per cent. above square sheets the company agree to pay 20 per cent. extra above scale prices.

In the old scale paragraph 8 read as follows:

8. Sheet and jobbing mills working three turns, the shearing shall be divided between two shearmen, and no shearman be allowed to shear for more than two turns.

This has been changed very materially, and in the new scale reads as follows:

8. Sheet and jobbing mills working three turns, the shearing shall be divided between two shearmen on jaw or crocodile shears, and no shearman be allowed to shear for more than two turns on jaw or crocodile shears or three turns on squaring shears.

Paragraph 9 in the old scale read as follows: "9. The shearman receives one-fifth, the same to be paid by the roller." In the new scale it now reads as given below:

9. That shearman receive one-fifth on jaw or crocodile shears, the same to be paid by the roller. That on sheet mills using squaring shears the price for shearing shall be one-sixth.

Paragraphs 10, 11 and 12 are unchanged and read as follows:

10. That the rollers on sheet mills shall not be permitted to hold more than two turns.
11. Sheet mills working three turns that make tin and black plate shall be permitted to work three turns of eight hours each, or seven heats each turn.
12. Roll hands on sheet and jobbing mills shall be paid one day's work at laborer's wages for changing rolls.

In the old scale Paragraph 13 read as follows:

13. Heater to receive one-fourth of the above prices, and 3 cents per bundle extra, to be paid by the company, for all iron, No. 20 and lighter, annealed in an open furnace; Shearman, one-fifth; roller to receive balance and pay rougher and catcher.

This has been changed to the following:

13. Heater to receive one-fourth of the above prices, and 3 cents per bundle extra, to be paid by the company, for all iron, No. 20 and lighter, annealed in an open furnace; Shearman, one-fifth on jaw or crocodile shears; roller to receive balance and pay rougher and catcher. This clause not to apply to mills using improved shears as provided for in Clause 9.

Paragraphs 14, 15, 16, 17 and 18 have not been changed, and read as follows:

14. That plates be designated as ending at No. 8 gauge and fire bed commence at No. 9 gauge and end at No. 19 gauge, and sheets to commence at No. 20 gauge.
15. That all mills working plates and fire bed to No. 19 gauge shall be termed jobbing mills.
16. That all mills working sheet iron or steel when on fire bed shall work under the same rules and rates as jobbing mills.
17. That neither of the above 15th or 16th clauses shall interfere with Clause 12 of sheet mill hands scale.
18. That the roller pays extra for working the spanner on chill rolls where there are two sets of rolls.

In the sheet mill hands' scale no change has been made down to Paragraph 4, except in Paragraph 2, and this has been changed from "doubled in pairs, 84 pairs per turn" to "doubled in pairs, 96 pairs per turn," and the scale as adopted to Paragraph 4 reads as follows:

Sheet Mill Hands' Scale.

SINGLE MILL.

Pair heating, per day	$2.25
Matching, per day	2.00

LARGE DOUBLE MILL.

Pair heating, per day	$2.00
Doubling, per day	1.75
Matching, per day	1.85

SMALL DOUBLE MILL.

Pair heating, per day	$1.85
Matching, per day	1.60
Doubling, per day	1.50

1. For all iron trimmed and annealed in an open furnace 3 cents per bundle extra to be paid to the pair heater, matcher and doubler, each.
2. This scale of wages is based on 180 pairs, per turn, for single mills, and No. 25 gauge and upward, doubled in pairs 84 pairs per turn; doubled in threes 105 pairs per turn. Single iron, 14 to 19 gauge, inclusive, 105 pairs.
3. That the limited output per turn on three-turn mills be nine heats, and on two-turn mills ten heats.

In the old scale Paragraph 4 read as follows:

4. A furnace full of welding iron to constitute a heat; provided a furnace shall not hold more than 15 pairs.

This has been stricken out and the following inserted in its place:

4. Mills that do not double 20 to 24 gauge to work at the rate of single iron mills, 180 pairs.

Paragraphs 5 to 9 inclusive are unchanged and read as follows:

5. Doubling over iron on a single mill to be made at the same ratio as on doubling mills.
6. All finishers to be counted.
7. On all sheets 36 inches wide and over the company shall furnish the extra help necessary, not to exceed two men.
8. Roll hands on sheet and jobbing mills shall be paid one day's work at laborer's wages for changing rolls.
9. Sheet mills working iron or steel 120 inches long and over, the day hands shall be paid an average day's work for the same.

Paragraph 10 in the old scale read as follows. In the new scale nine heats are made a turn's work:

10. Mills working narrow widths and short lengths, below and including 28 inches wide and 84 inches long, shall be allowed to make nine heats for a turn's work, and for each turn of nine heats the day hands shall be paid in proportion. This clause shall only apply to mills that make a uniformly large amount of narrow width and short length sheets.

Paragraph 11 is unchanged, as follows:

11. On sheet and jobbing mills working two turns of eight heats each, and on mills working three turns of eight hours each, the day hands shall be paid a full turn's work in case of failure to make the eight heats in the time specified in memoranda of agreement on a two-turn mill, or a full turn on a three-turn mill.

Paragraphs 12 and 13 are new additions to the scale and read as follows:

12. All sheet and jobbing mills working sheets over 30 inches wide shall be classed as large double mills. Mills working 30 and under in width are classed as small mills, but mills classed as small mills that work over 30 in width and not exceed 34, the day hands to be paid large mill prices while employed on these widths, and when a part of a turn is ran over 30 and does not exceed 34, the whole turn is to be paid for at large mill prices. This is to apply to mills classed as small mills at present.
13. Mills working narrow widths and short lengths to make the equivalent to 15 pairs of sheets per heat, containing 15½ superficial square feet each sheet. This to be governed by Section 11 of Sheet Mill Hands' Scale, and Section 8, Article XVIII of the Constitution.

The scale of wages for tin and black plate mills has been rearranged considerably.

The new scale as adopted for tin and black plate mills is as follows:

Tin and Black Plate Mills.

It is agreed that at a 2-cent Western Iron Association Card the prices for rolling, shearing, doubling and heating on a tin and black plate mill shall be as follows, with 3 per cent. additional for each one-tenth advance of said card, and 3 per cent. decline for each deduction of one-tenth from said card:

Gauges	Rolling steel 2,240 lbs.	Doubling.	Heating.	Shearing on jaw or crocodile shears.
Nos. 8 to 11	$2.27	$1.03	$ .94	$ .76
Nos. 12 and 13.	2 37	1.07	1.00	.79
Nos. 14 and 15.	2.72	1.22	1.19	.91
Nos. 16 and 17	3.64	1.63	1.48	1.21
Nos 18 to 20	4.08	1.83	1.68	1.36
Nos. 21 to 24	4.51	2.05	1.79	1.49
Nos. 25 and 26.	4.86	2.20	2.00	1 61
Nos. 27 and 28.	4.96	2.36	2.19	1.65
Nos. 29 and 30.	5.89	3.00	2.76	1.95
No. 31	6.15	3.25	3.03	2.03
No. 32	6.56	3.52	3.18	2.18
No. 33	7.41	3.78	3.58	2.45
No. 34	8.06	4.04	3.85	2.67
No 35	8.84	4.21	4.12	2.92
No. 36	9.64	4.56	4.39	3.19
No. 37	10 52	4.83	4.68	3.49
No. 38	11.40	5.09	4.97	3.78

Fifteen per cent. less than the above prices for iron.

Shearman on modern squaring shears to receive $1 per turn. This clause only applies for shearing tin plate.

EXTRAS.

1. Twenty per cent. added for changed iron and steel.
2. Thirty-three and one-third per cent. added for pickle finished iron and steel, except shearman.
3. For all sheets sheared into circles on tin and black plate mills where the loss exceeds 10 per cent., 20 per cent. extra shall be paid.
4. That all sheets cut down to smaller sizes on tin and black plate mills be paid for at scale prices.

In connection with the above scale, it should be noted that it contains several items which have not as yet been agreed upon by the respective conference committees. In the sheet mill hands' scale the manufacturers insist on a paragraph being added as follows: "That if any mill in the Western District, in which Amalgamated Association men work, deviation be made from this scale whereby the labor cost of the product be reduced, the same deviation shall obtain in all other mills." This has not yet been agreed upon by the Amalgamated Association, and may cause trouble before it is finally settled. In addition to the above there are several other minor points to be arranged. In all probability, however, the entire scale will be amicably arranged at the next meeting of the conference committees.

Carnegie Steel Company, Limited.

On June 30, 1892, official announcement will be made at Pittsburgh to the effect that the Carnegie Steel Company, Limited, of that city would succeed to and carry on the business of the manufacture of iron and steel formerly conducted by Carnegie Brothers & Co., Limited; Carnegie, Phipps & Co., Limited; Allegheny Bessemer Steel Company and Keystone Bridge Company. The new organization will become effective on July 1, and will control and operate the following works: Edgar Thomson Furnaces and Edgar Thomson Steel Works, at Braddock, Pa., at which plants are turned out annually 850,000 net tons of Bessemer pig iron, spiegeleisen and ferromanganese, and 425,000 net tons of steel rails; Homestead Steel Works, Homestead, Pa., the product of which consists of blooms, billets, structural shapes, bridge steel and boiler, armor, ship and tank plate, the annual capacity being 180,000 net tons of Bessemer steel ingots and 200,000 net tons of open-hearth steel ingots; Duquesne Steel Works, Cochran Station, Pittsburgh, Virginia and Charleston Railroad, the product being rails and billets, which are rolled down from the ingots at initial heat, the annual capacity being 225,000 net tons of rails or billets; Keystone Bridge Works, Pittsburgh, Pa., whose product is finished bridge material of all kinds, the annual capacity being 18,000 net tons; Upper Union Mills, Thirty-third street, Pittsburgh, whose product is structural iron and steel and steel bars, iron and steel universal mill plates and light steel rails, the annual capacity being 85,000 net tons; Lower Union Mills, Twenty-ninth street, Pittsburgh, whose product is universal mill plates, car forgings, bridge work, angles, axles, pins, links and bar iron, with an annual capacity of 50,000 net tons; Lucy furnaces, Pittsburgh, with an annual capacity of 175,000 tons of Bessemer, forge and foundry pig iron; Beaver Falls Mills, Beaver Falls, Pa., with an annual capacity of 54,000 net tons of wire rods and 700,000 kegs of wire nails. This plant is also equipped for the manufacture of merchant steel bars to the extent of 30,000 net tons per annum, but this department has not been in operation for some time.

Included in the consolidation are also the concerns known as the Scotia Ore Mines, Larimer Coke Works at Larimer, Pa., and the Youghiogheny Coke Works, on the southwest branch of the Pennsylvania Railroad. The product of the Scotia Ore Mines and the two coke plants,

as noted above, is all consumed in the different plants of the Carnegie Steel Company, Limited. The general offices will remain at Pittsburgh as heretofore. When the amount of product, capital invested and number of hands employed is considered, the Carnegie Steel Company, Limited, undoubtedly represent the largest iron and steel manufacturing concern in the world. Although no official figures have been given out as to the number of men employed, it is safe to say that between 25,000 and 30,000 men are employed in the various plants of this firm. In addition to the general offices located at Pittsburgh, sales offices for the sale of the various products of the firm are located in the following cities: Boston, New York, Philadelphia, Buffalo, Cleveland, Detroit, Chicago, Minneapolis, Cincinnati, Atlanta, St. Louis, Denver and San Francisco. The following are the officers of the Carnegie Steel Company, Limited: H. C. Frick, chairman; John G. A. Leishman, vice-chairman; F. T. F. Lovejoy, secretary; H. M. Curry, treasurer.

LABOR AT PITTSBURGH.

With the exception of the adoption of the sheet scale governing wages in sheet mills for the year 1892 93, which is printed elsewhere in this issue, the labor situation at Pittsburgh does not show much change from that noted in our issue of last week. Some conferences have been held between the Conference Committee of the Amalgamated Association and the Pittsburgh iron manufacturers, and also the Carnegie Steel Company, Limited; but at this writing the indications are that a settlement of the wage scale is further off now than ever before. The adoption of a scale by the Iron and Steel Sheet Manufacturers' Association led many to believe that it would open the way for a settlement between the Amalgamated Association and the iron manufacturers. Such, however, has not proven to be the case.

On Friday at 3 p.m. the Conference Committee of the Amalgamated Association and the iron manufacturers of Pittsburgh held a meeting in the Ferguson building in that city which was in session for about five hours. Practically the same ground was gone over at this conference as at the previous conferences held the week before. Both sides re affirmed the positions taken at previous conferances, and neither side seemed inclined to make any concessions whatever. The committee appointed to represent the Amalgamated Association was given limited powers and insisted on the adoption of the scale as originally presented by that organization. On the manufacturers' side the position taken at previous meetings was reaffirmed and the assertion made that it would be utterly impossible for the manufacturers to sign the Amalgamated scale. A long discussion was had, and the different points in the scale were gone over carefully, but at the conclusion of the meeting there were no indications of a settlement being reached. The manufacturers insist on the adoption of the scale as presented by them, which calls for boiling at $4.50 on a 2-cent. card and proportionate reductions in other departments. As the present scale expires on Thursday, the 30th, it does not seem probable that a settlement will be reached this week, and the indications for a strike are strong. The Amalgamated Association officials are no doubt surprised at the firm stand taken by the Pittsburgh manufacturers. When the manufacturers' scale was first presented to the Amalgamated Association the officials of that body looked upon it as a large-sized bluff, and did not seem to feel that its enforcement would be demanded. However, events so far show that the position taken by the manufacturers is a determined one, and that unless concessions are made by the Amalgamated Association a strike is sure to come. After the conference on Friday, the 24th inst., had adjourned, no time was set for another conference, but one will probably be held during the present week. The Tyler Tube & Pipe Company of Washington, Pa., signed the Amalgamated scale last week. As is always the case when a concern signs the scale while it is in dispute, they were given to understand that they will be allowed to participate in any concessions that are made by the Amalgamated Association after they had signed the scale. The Tyler Tube & Pipe Company are manufacturers of skelp iron for boiler tubes, their works being located at Washington, Pa. Their plant contains eight forge fires, one run-out fire, four heating furnaces, two trains of rolls, 16 and 18 inch in size, and two hammers. This firm will also use the product of the Principio Forge Company, located at Principio, Md.

On Friday morning, the 24th inst., a conference was held between a Conference Committee appointed by the Amalgamated Association and the officials of the Carnegie Steel Company, Limited. The firm was represented by H. C. Frick, chairman; Otis H. Childs, F. T. F. Lovejoy and John A. Potter, superintendent of the Homestead Steel Works. The Amalgamated Association was represented by about 25 delegates who are employed at the Homestead Steel Works. The session was quite a long one, but no progress whatever was made looking to the adoption of a scale to govern wages in the Homestead Steel Works. As we have already announced in these columns, the minimum price in the present scale is $25 on 4 x 4 inch billets. In the new scale the minimum price was fixed by the firm at $22 per ton. This was strongly objected to by the employees, and at the above conference the firm decided to advance the minimum price from $22 to $23, while the employees would only agree to accept a reduction of $1 per ton on the minimum price, which reduced it from $25 to $24 per ton. This is a clear difference of $1 per ton between the firm and the men, and as neither side would recede from its respective prices nothing was accomplished.

Another point in connection with the arrangement of the scale which is giving considerable trouble is regarding the time at which the scale shall expire. The firm insist that the scale continue in force for 18 months from July 1, 1892, which would make it expire on December 31, 1893. The reason advanced by the firm for wanting to have the scale expire at this time of the year is the fact that improvements and repairs at the Homestead Steel Works are always made during the last week of the old year and the first week of the new. At this period the works are generally closed down for about two weeks, and the scale expiring at this period would be of considerable advantage to the firm. On the other hand, the employees objected strenously to have the scale expire on the last day of the year, and insisted that it should be arranged to expire when other scales do, which is on June 30 of each year. They agree to have a scale run for one, two, three or five years, but insist that it must expire on June 30. The firm emphatically declined to grant this point, and there the matter ended. The conference adjourned without any request from the Amalgamated Association for another meeting, and at this writing no arrangements have been made looking to another conference. The indications are that a strike will occur at Homestead, although it is hard to tell what two or three days may bring forth. In anticipation of trouble at the Homestead Steel Works, the Carnegie Steel Company, Limited, are said to have canceled a number of orders and declined in many instances to take orders for delivery during July and August, for fear they would have trouble in filling them. Preparations have been made for a strike, and the firm have endeavored in every way to fortify their position in case a shut down occurs. As the scale now in force expires on Thursday, the 30th inst., if a strike is to be averted prompt action must be taken during the first half of this week. It is certain the firm will not ask for another conference with the Amalgamated Association, and just what the next step will be it is impossible to state As we note above, however, indications point to a strike at the Homestead Steel Works, to commence on July 1.

On Friday, the 24th inst., the Conference Committee of the Amalgamated Association met the wire rod manufacturers in the Ferguson Building, Pittsburgh, and the scale of wages governing wire rod mills for 1892–93 was carefully gone over. It is understood that there are some portions of the scale which are not acceptable to the manufacturers, they claiming that there are some discrepancies existing which should be corrected. As the points at issue are of minor importance it is possible that the wire rod scale will be arranged to the satisfaction of both manufacturers and workmen during this week. It is probable another meeting will be held before the present scale expires on the 30th inst.

On Saturday the Conference Committee of the Amalgamated Association sent to the different iron manufacturers both in Pittsburgh and the Mahoning and Shenango valleys districts the scale of wages prepared by the Amalgamated Association to govern wages in rolling mills during the year 1892-93. This scale has already been printed in *The Iron Age*, and is virtually the same as the scale which expires on June 30. As the Amalgamated Association will have adjourned before replies are received from the manufacturers as to their intentions regarding the signing of the scale, the Conference Committee has been delegated with a certain amount of power to treat with the manufacturers in regard to the wage scale. A meeting of the Conference Committee of the manufacturers and the Amalgamated Association will undoubtedly be held during this week.

At the conclusion of the last meeting between the Conference Committee of the Amalgamated Association and the manufacturers of the Mahoning and Shenango Valley districts, a request was made by the manufacturers to the effect that, as soon as the Amalgamated Association had concluded their sessions at Pittsburgh, they should send their Conference Committee to Youngstown, to confer with the manufacturers of the two valleys. This request was assented to, and as the Amalgamated Association will have concluded its labors and adjourned on Wednesday, the 29th inst., the meeting asked for will be held in Youngstown on Thursday, the 30th inst. At this time it is not known whether the valley manufacturers will offer any other scale than that presented in Pittsburgh early this month and printed in *The Iron Age* of June 9, or not. As the valley and other Western manufacturers are treating with the Amalgamated Association entirely independent of Pittsburgh, it would not be surprising if a compromise scale is agreed upon at the above conference. That such will be the case is not known absolutely, but it is reported on good authority that the valley manufacturers, in order to effect a peaceful settlement, will offer some concessions if the Amalgamated Association will do the same. The outcome of this conference will be awaited with considerable interest.

The present agitation in labor circles at Pittsburgh is responsible for a large num-

ber of statements being printed in the daily press of that city in matters connected with the impending strike which are wholly devoid of the truth. One of these lately printed was in reference to the Oliver & Roberts Wire Company of that city. The statement was made that this firm last year received concessions from the Amalgamated Association in the way of a special scale in which rates of wages were 15 per cent. lower than called for by the regular Amalgamated scale. This statement has been denied by the firm in question in a letter addressed to the Pittsburgh *Commercial Gazette*, which reads as follows:

Editor Commercial Gazette:

In your local of this date you say that the Amalgamated Association last year "made terms with the Oliver & Roberts Wire Company conceding that company a reduction of 15 per cent. on scale rates," and that "the concession was made in violation of the constitution of the association," &c. The above statements are entirely untrue in all respects. The Oliver & Roberts Wire Company's arrangements and terms last year with the Amalgamated Association were precisely the same as those made with other companies and firms engaged in similar lines of manufacture, and as far as we know there was no concession and no "violation of the constitution."

It is very desirable, in the present state of the controversy between the manufacturers and workmen, that nothing but what is strictly the truth should appear in the public prints, and it is with this end in view that we ask you to publish this correction.

OLIVER & ROBERTS WIRE COMPANY.

Other misleading statements regarding other firms have been printed, which the firms in question have allowed to pass without going to the trouble of correcting them.

The scale, as signed by the Oliver Iron & Steel Company, applies only to the Clapp-Griffith department, and is as follows:

PITTSBURGH, PA., June 27, 1892.

The following agreement between the Oliver Iron & Steel Company of the first part and McGann Lodge No. 93 Amalgamated Association of Iron and Steel Workers of the second part, beginning July 1, 1892, and ending June 30, 1893. The following scale of wages:

Converting Department.

Position	Number employed.	Per 100 heats.
Cupolaman	1	$9.45
Cupolaman's helper	1	5.50
Troughmen, each	2	5.50
Vesselman	1	7.75
Vesselman's first helper	1	5.50
Vesselman's second helper	1	4.75
Ladleman and pourer	1	7 75
Ladleman's first helper	1	5.50
Ladleman's second helper	1	4 99
Tapper	1	5.50
Tapper's helper	1	4.50
Manganeseman	1	4.50
Capper	1	4.50
Pulpit boys, each	3	2.90
Pit foreman	1	6.00
Pit foreman's helper, each	3	5.50
Engineer blowing engine, per day, 12 hours	1	2.25
Engineer pit locomotive, per day, 12 hours	1	2.10
Stocker	1	1.50
Stocker's helper, each	4	4.50
Coke wheeler	1	4.50
Scrap wheeler, 12 hours per day.	1	3.50
Bottom maker, 12 hours per day.	1	2.35
Bottom maker's helper, 12 hours per day	1	1.90
Cindermen, each	3	3.50

Blooming Mill Department.

Position.	Number employed.	Per heat.
Heater	1	$0.10
Heater's helpers, each	5	.06
Roller's helpers, each	2	.07
Leverman	1	.09
Shearman's helpers, each	2	.05 1/8
Shear tongsmen	1	.05 3/4
Crane boy	1	.02 9-10

Billet Mill.

		Per 100 billets.
Rougher	1	$1.25
Catcher	1	1.10
Hook-up	1	.86
Buggyman	1	.86
Drag-outs, each	2	.86

Billets to weigh 200 pounds or over.

NOTE.

1. That no billets smaller than 4 x 3 be made on the blooming mill.

2. It is further agreed that in case of a mechanical breakdown in either department, causing a stoppage of the work, the men shall remain under orders for 30 minutes. At the expiration of 30 minutes the manager shall decide whether he will hold the men longer or not, and for all time afterward that he holds the men they shall be paid at the rate of 4⅝ heats per hour until work is resumed, after which the men shall be paid for what they make; in subsequent breakdowns on the same turn the rate shall be that if the men are held longer than half an hour and work is resumed the men shall be paid for the half hour at the rate of 4⅝ heats per hour; if work is not resumed at the end of the half hour no allowance shall be made for it.

3. That an extra tongsman be furnished by the firm when the new soaking pit is working.

4. That when blooming mill is off and converting mill is on and ingots being stocked, the men shall be furnished by the firm to stock steel back from the pusher.

5. That the vessel helpers be paid at the rate of 35 heats on patching days.

Note.—Roller and shearman on above scale are void, roller on day turn to have charge of both turns He is to look after and keep up the mills, for which he is to receive 12 cents per heat on all steel made in the day time and 1 cent per heat on all steel rolled in the night turn. The night roller is to receive 10 cents per hour on all steel rolled on his turn.

(Signed) OLIVER IRON & STEEL COMPANY,
By D. B. OLIVER.

JAMES MCMULLEN,
JOHN HONN,
GRIFFITH DAVIS, } Committee.

The only change is an advance for some of the ladle men.

(*By Telegraph.*)

JUNE 29, 1892.

Another meeting between conference committees of the Amalgamated Association and the Association of Iron and Steel Sheet Manufacturers was held in the Times Building, Pittsburgh, last night. The meeting was in session from 7.30 p.m. until 5 a.m. There are three points of difference still existing between the Amalgamated Association and the manufacturers, but these will doubtless be arranged at a conference to be held here to-day or to-morrow. No trouble is anticipated between sheet mills and the Amalgamated Association, for iron mills scale has been signed by National Rolling Mills of the National Tube Works Company, McKeesport, Pa. No change has occured at Homestead Steel Works, and a strike is certain. The entire plant will be closed down on the night of June 30, and extensive repairs will be made which will take about 15 days to complete.

The Mining Engineers.

(*By Telegraph.*)

The mining engineers opened their convention at Bluff Point, Clinton County, N. Y., Tuesday evening under most auspicious circumstances. The attendance is larger than at any of their former meetings, amounting to over 200, including about 50 ladies. The members and friends are delighted with the superb location and accommodations of the Hotel Champlain, at which the meetings will be held. The opening address was made by John Birkinbine, the president, his subject being the influence of location upon the pig-iron industry. At this late hour it is impossible to do more than note the salient points of this exceedingly interesting address, which dealt first with the reasons for locating in the early stages of the industry, second reasons for changing in later years, and the presentation of tables showing that during the past five years the production of Bessemer pig has not quite maintained the proportions that it did previous to 1888. The address of welcome was made by F. S. Witherbee of Port Henry, and was in a most happy vein, being full of interest in regard to the iron-ore industry and bristling with historic facts.

A very interesting programme has been prepared for the next three days, including trips to Port Henry, Crown Point and other places of interest.

OBITUARY.

JAMES O. RICHARDSON.

James O. Richardson, who died at his home in Philadelphia, was one of the best-known iron commission men and agents in Philadelphia, having been in the business upward of 40 years. He was a New Englander by birth, and was 66 years old. From Worcester, Mass., he went to New York, entering the hardware business afterward at Danville, Pa. Subsequently he became manager for Atkins Brothers' Pioneer Furnaces at Pottsville, and later agent for the Monocacy Iron Company. Among the companies represented by Mr. Richardson at his death were Heckscher & Sons' Swede Furnaces at Swedeland, Pa., and the Rockhill Iron and Coal Company, whose furnaces are at Orbisonia.

D. DEANE WAITE.

D. Deane Waite, secretary of the Hitchcock Lamp Company, died at Watertown, N. Y., June 19, aged 50 years and 2 months. He was born in Champion. In 1868 he engaged in business at Carthage. He came to Watertown in 1873 and was employed by the Agricultural Insurance Company. Later he engaged in the crockery business under the firm name of Waite, Allen & Co. He was also employed several years by the Sun Fire Company. He was engaged by the Hitchcock Lamp Company later, and in 1887 became a stockholder and director of the Gifford Mfg. Company. He had been secretary of the Hitchcock Lamp Company for two years. He leaves a wife and three daughters.

M. G. RUBEL.

M. G. Rubel, vice president of the American Cutlery Company, Chicago, died on the morning of the 23d inst. The deceased had been for 20 years actively associated with the table cutlery interests of the country, and leaves a large circle of mourning relatives and friends.

P. Seif, Jr., superintendent of the Lower Union Mills of Carnegie, Phipps & Co., Limited, at Pittsburgh, has resigned his position, to take effect on July 1 next.

M. R. Hunt terminates his four years' engagement as manager of the Ashland Iron & Steel Company, at Ashland, Wis., on July 1. His successor had not been appointed at last advices. Mr. Hunt has won enviable distinction in the charcoal pig-iron trade by his eminent success in conducting the operations of the Hinkle Furnace. Under his management an output was attained that far surpassed all expectations.

A press dispatch from Baltimore, Md., June 23, states that the tin-plate works of Coates & Co. were destroyed by fire Thursday morning.

The Allentown Rolling Mills have reduced puddlers' wages from $3.80 to $3.30 per ton, and the pay of other employees proportionately.

At the annual meeting of the stockholders of the Bethlehem Iron Company, Joseph Wharton and Beauveau Borie of Philadelphia and Robert H. Sayre, E. P. Wilbur, Robert P. Linderman, George H. Myers and John Fritz were elected a Board of Directors.

The Cleveland Stamping and Tool Company, Cleveland, Ohio, have about completed their new buildings and will be running in a few days.

MANUFACTURING.

Iron and Steel.

Jas. F. Larkins, for a number of years with the A. French Spring Company of Pittsburgh, has severed his connection with that firm and has accepted the position of superintendent of the works of the American Spiral Spring Company of Pittsburgh, manufacturers of all kinds of spiral springs. The works of the last-named concern are located at the corner of Shingiss and Bluff streets, Pittsburgh, and are being operated full time and turning out a large product. Their business was established in Pittsburgh a few years ago, and has increased very rapidly and is still growing.

Furnace F of Carnegie Brothers & Co., Limited, at Braddock, Pa., is now out of blast undergoing repairs. Ten feet is being added to the hight of this furnace, to correspond with furnaces H and I. Furnace F has also been relined, and it will probably go in blast early in July.

The regular annual meeting of the stockholders of the Stirling Steel Company of Pittsburgh, with works at Demmler, Pa., will be held at the general office of the company, Westinghouse Building, Pittsburgh, Pa., on Tuesday, July 12 next.

F. R. Phillips of Philadelphia is, this week, shipping one of the five-roll Morewood sets for bright tin to Wallace Banfield & Co., Limited, Irondale, Ohio.

J. H. Sternbergh & Son, Reading, Pa., report business as brisk in the line of bolts and nuts, rivets, &c. Their works have been running to full capacity for some time to keep abreast of orders, with every indication of a satisfactory continuation. They are now engaged upon perfecting some new lines of manufacture

The Lebanon Iron Company, Lebanon, Pa., are about to put in a new 8-inch rolling mill. Their works are running full; orders coming in plentifully the last few weeks, and condition of business stated to be very satisfactory considering the prevailing depression.

The Lickdale Iron & Steel Company, Lickdale, Pa., are now turning out 125 tons of steel billets and plates daily. They report a ready market for their goods among Pennsylvania manufacturers. The company expect to increase their facilities by the addition of new rolls and billet train shortly, the condition of their business lately having been encouraging. The Lickdale Iron & Steel Company have been reorganized lately in consequence of the decease of Mr. Lick, their late president. The present officers are Samuel Weiss, president, C. Penrose Sherk, managing director, Samuel Grob, superintendent, and James L. Rutter, secretary and treasurer. The company's office is at Lebanon, Pa.

The new universal mill which has been erected by the Pennsylvania Steel Company for the Central Iron Works, Harrisburg, Pa., is now completed as far as the structure is concerned. The rolling machinery and necessary equipment are now being placed and the mill will probably be put in operation about the middle of July.

Hon. Frank Lyman of Brooklyn, N. Y., who recently purchased the Covington Furnace at Covington, Va., is preparing to have it remodeled with a view of putting it in operation in connection with the Dolly-Ann, Iron Mountain and Stack mines, all of which he owns.

The Jenifer Iron Company, Jenifer, Ala., are building a new furnace. The stack is completed and they are now erecting two stoves furnished by Riter & Conley of Pittsburgh, Pa. They are also erecting a new washer at the furnace. The officers are: John W. Noble, president; W. D. Fields, secretary and treasurer, and A. E. Noble, superintendent.

The American Pipe Works at Anniston, Ala., recently sent out the heaviest shipment of pipe that was ever made from a Southern city. It was consigned to Lancaster, N. H., and consisted of a train of 20 cars.

At the recent annual meeting of the Anniston Rolling Mills, Anniston, Ala., Robert Frayer was elected president, and W. E. Robertson secretary and treasurer.

Last Wednesday the Griswold Wire Works of Troy, N. Y., started up after having been closed some time for repairs. The new turbine water wheel works very satisfactorily.

The West Superior Iron and Steel Company, West Superior, Wis., have decided to use the Ridgway steam-hydraulic system, and W. F. Mattes, the general manager, during his recent vacation East placed an order for Ridgway cranes for their new hammered ingot department.

The Yale Steel Company, recently incorporated, are now remodeling the old plant of the New Haven Nut Company, at Westville, Conn., preparatory to commencing the manufacture of polished steel drill rods, needle wire, &c. Latest improved special machinery and power equipment is now being put in. The new concern expect to be ready for business by August 1. The officers of the company are Samuel Hodkinson, president, and Charles C. Long, secretary and treasurer. William Kidd, formerly of Kidd Steel Wire Company, Sharpsburg, Pa., is to be superintendent.

F. R. Phillips of Philadelphia has been awarded the contract by the N. & G. Taylor Company of Philadelphia for the whole of the "old style" tinning sides as well as the entire outfit of five-roll Morewood tinning sets for their new plant in Philadelphia.

The Le Clair Steel Company, Belleville, Ill., have been incorporated, with a capital stock of $50,000, to manufacture nails, merchant iron and other manufactures. The incorporators are Jas. C. Waugh, C. W. Stanley and W. M. Switzer.

It is reported that a company composed of Bellaire, Wheeling and Pittsburgh capitalists have purchased the plant of the Ætna Glass and Mfg. Company, at Bellaire, Ohio, which they will remodel for the manufacture of stamped ware. It is proposed to turn out tin and granite ware and tubular lanterns. The capital stock of the new concern is reported to be $150,000, with privilege of increasing to $250,000.

The Pennsylvania Steel Company, at Steelton, Pa., are building a slabbing mill capable of taking 36 x 52 inch ingots. They will also build four additional open-hearth furnaces.

Stanhope Furnace has been blown out.

The Fulton Iron Works, recently destroyed by fire, will not be rebuilt at San Francisco, but will seek some other location on the coast, probably Oakland.

The plant of the Crescent Horseshoe Works, at Max Meadows, Va., for the manufacture of horseshoes and bar iron, is nearing completion.

Work has begun on the foundations for the Malleable Iron Works, at West Troy, N. Y.

Machinery.

At a meeting of the Board of Directors of the Westinghouse Air Brake Company, held in Pittsburgh last week, the regular quarterly dividend of 5 per cent. was declared, also an extra dividend of 5 per cent., payable on July 9, to stockholders of record on July 1. For the first six months of this year the Westinghouse Air-Brake Company have declared dividends amounting to 25 per cent. Two more regular dividends of 5 per cent. each will probably be declared this year, which will make 35 per cent. in dividends paid for the year 1892. It is also probable that one or two extra dividends will be declared during the coming six months.

In the United States Circuit Court at Pittsburgh last week there was on trial the case of the Consolidated Ice Machine Company of Illinois against the Union Ice Mfg. Company of Pittsburgh. The suit is to recover $72,000, claimed to be due on machines for the manufacture of artificial ice sold to the defendant company.

A machine shop will be erected at Kilgore, Texas, by E. C. Scott.

The Vulcan Iron Company of New Castle, Pa., have just completed the erection of a new foundry and machine shop. The former is a brick structure 60 x 160 feet, with structural steel roof, and is fitted with two 15-ton cranes, two Colliau patent cupolas, with steam elevator for carrying up the metal, and latest improved core oven. The machine shop is 120 x 60 feet, and equipped with the latest modern machinery. The company have been established six years. They make a specialty of rolling mill stock.

R. H. Hammond & Co. have succeeded to the business hitherto known as Grove & Hammond of the Union Boiler Works, Lebanon, Pa., engineers and constructors of boiler, gas works, blast furnace and steel plant work.

The Weimer Machine Works Company, Lebanon, Pa., have just shipped a large blowing engine to the Sloss Iron and Steel Company of Birmingham, Ala. The engine weighs 185 tons, with 96-inch air cylinder, 54-inch steam cylinder and 84-inch stroke. The company are busy on the manufacture of their patent Weimer tilting cinder car for handling blast furnace cinders or other molten materials. Four of these, each having a capacity of 160 cubic feet, the largest yet built, have recently been made for the Illinois Steel Company of Chicago, and 12 more of the same size are to follow. One of these cinder cars has also been shipped within the last few days to the New Glasgow Coal, Iron and Railroad Company, New Glasgow, Nova Scotia. The Weimer Machine Company are contemplating embarking in the manufacture of large sized engines, of 100 horse-power of the Corliss cross compound and tandem types, which will necessitate some extension of plant. A number of new machines of their own make, adapted for special purposes in connection with their lines of manufacture, have recently been added, notably a heavy boring mill, with four borers and a capacity of 16 feet under the head. The mill has a 20-ton crane.

Harrisburg Foundry & Machine Company, Harrisburg, Pa., continue their condition of activity, with works running full on double turn. They have several important contracts on hand for Ideal engines and road rollers. The company have received, during the last few weeks, a number of letters testifying in the highest terms to the efficiency of the double engine road rollers made by them for various parties at Chicago, Augusta, Ga.; Hartford, Conn.; Sedalia, Mo.; Cincinnati, and Troy, N. Y.

The Adams Iron Works, which recently burned out at Dubuque, Iowa, will rebuild their foundry at once. The wholesale hardware firm of Schreiber, Conchar & Westphal Company, who also manufacture a line of hardware specialties, will jointly occupy the new building. It will have a length of 200 feet by a depth of 100 feet and will have a switch track at the rear, connecting with all roads coming into Dubuque.

The Tupelo Foundry & Machine Company of Tupelo, Miss., will enlarge their plant.

The new railroad shops to be erected at Meridian, Miss., by the Queen and Crescent, will cost $30,000 and be one-third larger than the old shops which were burned. The contract calls for completion by October 1. W. S. Davis of Birmingham, Ala., is the contractor.

The firm of Brettell & Wilson, manufacturers of planers and special machinery, at Rochester, N. Y., have been succeeded by William A. Wilson, he having purchased Mr. Brettell's interest. Mr. Wilson announces that he has built new patterns for his planers and has improved them. He is now in position to fill orders promptly both for his improved planers and for the machinery for which he is agent.

The Royersford Machine Company of Royersford, Pa., report satisfactory progress in their extensive line of manufacture. The company were formed nearly two years ago, with a paid-up capital of $40,000, S. H. Egolf being president, J. J. Nix vice-president, A. Loomis secretary, S. B. Latshaw treasurer, with Y. C. Freed as general manager. They have met with a very satisfactory amount of success, and are now increasing their lines of goods very materially, for which purpose ground has been purchased for the erection of additional buildings, including a brass foundry. They are at present in occupation of a handsome five-story building, 120 x 80 feet, adjoining the tracks of the Philadelphia & Reading Railroad, well provided with machinery and all necessary equipments. The Royersford Machine Company have lately commenced the manufacture of iron and steel shafting, hangers, couplings, &c., as well as engines, mill supplies, glass molds, pumps and elevators, which are their staple productions, for which a ready market has been found, particularly in the immediate district. The company are sole agents in the United States for the Rennyson & Nix's fuel-gas generator, for which they have some substantial contracts on hand.

The Campbell & Zell Company of Baltimore have been awarded the contract for one 250 horse-power Zell improved water-tube safety boiler by Messrs. Badenoch Bros., Chicago, Ill.

Lincoln & Co., Hartford, Conn., have recently begun the manufacture of a line of improved bleaching, dyeing and finishing machinery heretofore made in England. The new department is in charge of E. A. Rusden, formerly connected with Mather & Platt, Manchester, England. A number of important mills have been fitted out with these machines, and Lincoln & Co.'s works are running full time.

N. P. Hyndman of Pittsburgh, agent for the Hazard Mfg. Company, Wilkesbarre, Pa., has on exhibition in his office in that city a piece of steel-wire cable, taken from No. 9 cable, Chicago City Railway Company, placed in service April 26, 1891, and removed on May 15, 1892. Its record is as follows: Days of service, 385; miles per day, 285, or 14¼ miles per hour; total mileage, 109,725 miles; best mileage ever made by the Chicago city railway system; diameter was 1 5-16 inches; weight per foot, 2.86 pounds. This mileage service is remarkable, when considering that a fair average of street cable service is 60,000 miles and considering also the immense traffic of the Chicago City Railway Company's system.

The announcement has been made by Homer Ramsdell of Newburg, N. Y., that his machine shop, &c., formerly occupied by William Wright, was for sale or rent. This has given an impression to a great many that the Wright Steam Engine Works have gone out of business. The facts are that he vacated Mr.

Ramsdell's shops on May 1 to occupy new and extensive works of his own, which he has been building for the last two years. The new works are located upon the Hudson River at the north end of Newburg and are not only larger than Mr. Ramsdell's shops, but are fitted up with all modern and special tools, electric and steam cranes, &c. Mr. Wright is now in a position to do much more work of the heaviest description than he could do in the old shops. He is full of orders, among them being a 400 horse-power for San Juan Smelting Company of Durango, Col.; a 1500 horse-power for Amoskeag Mfg. Company, Manchester, N. H.; a 600 horse-power for the Everett Mills of Lawrence, Mass.; a 1000 horse-power for the Coney Island & Brooklyn Electric Railroad Company of Brooklyn, N. Y.; a 300 horse-power for the Geo. W. Wheelwright Paper Company of Boston, and a 1000 horse-power for the New York and Brooklyn Bridge, Brooklyn, N. Y., and others.

The Rodney Hunt Company are building an addition to their machine shop at Orange, Mass. The addition will be 75 x 40 feet, two stories high.

The Atwood Machine Company of Stonington, Conn., have received an order from Moscow, Russia, for silk machinery.

The Morris Machine Works have been incorporated, with a capital stock of $300,000, to carry on business at Baldwinsville, N. Y.

The Burr & Bailey Company have been incorporated, with a capital stock of $60,000, to conduct a machine shop at Wilmington, Del.

Morse, Williams & Co. of Philadelphia have recently placed a hydraulic passenger elevator in the Masonic Temple, Richmond, Va. They also have contract to place a hydraulic passenger elevator in the Masonic Temple now being erected in Camden, N. J.

Hardware.

Scranton Axle Works have been organized at Scranton, Pa., with a capital stock of $150,000. The officers of the company are: J. M. Kemmerer, president; Thomas J. Moore, secretary, and E. H. Ripple, treasurer. A building is now in course of erection, and with the machinery, which is nearly all purchased, will cost about $60,000. The company hope by November next to turn out from 300 to 400 sets of axles daily. They are the owners of 11 new patents relating to the manufacture of axles.

Udell Wooden Ware Works, North Indianapolis, Ind., have recently made an addition to their power plant by adding three boilers and a fine Corliss engine. They have also put in a new electric-light plant and erected a wing to their factory, 92 x 72 feet, three stories high, and are intending to build another structure 270 x 70 feet, three stories high.

S. B. Howe, manufacturer of handles, at Logansport, Ind., has been so crowded with orders recently that he finds himself unable to make prompt shipments. Hard wood is becoming so scarce in that section of the country that he is contemplating the removal of his handle factory to the South.

Cincinnati Mfg. Company, Cincinnati, Ohio, advise us that they have recently put in new and improved machinery at their Hammond street factory for the manufacture of brass and art metal work of every description used in bank railing, elevator inclosures, grille work, &c., and are now in a position to manufacture this work to the best advantage.

The Lackawanna Hardware Company, with a capital stock of $30,000, have been incorporated at Scranton, Pa., for the manufacture and sale of hardware. The incorporators are Chas. McMullins, N. C. Cawles and John Ferber.

Miscellaneous.

Patch & Swift, Streator, Ill., advise us that they are doing a fairly satisfactory business in both stove repairs and architectural iron work, and that they have been making some work for the World's Fair buildings at Chicago and for other buildings throughout the State. They have added a pattern shop and a new office to their works this year.

The Waterbury Brass Company of Waterbury, Conn., are putting up their new wire mill, which will be of iron designed and furnished by the Berlin Iron Bridge Company of East Berlin, Conn. The rolling mill will be 100 feet wide and 160 feet long, with a wing (to be used for drawing wire) 40 feet wide by 280 feet long.

The Sunset Metal Cross Tie Company have filed articles of incorporation at Los Angeles, Cal., the purpose of the company being the manufacture of Sweet's steel cross ties and fastenings and other railroad appliances. The capital stock is $1,000,000, of which $950,000 are said to have been paid in.

The factory of the Ontario Wire Fencing Company, at Picton, Ont., has been totally destroyed by fire. The loss is $10,000.

TRADE REPORT.

Interest, of course, centers in the labor situation in the West, to which we devote a good deal of space elsewhere. A sharp distinction should be made between the Steel and the Iron mills, although in many cases both are made by the same concerns. First of all, the Rail mills are not involved, nor are quite a number of Steel works which are non union. The keenest struggle will be made at the Carnegie Homestead mill, or "Fort Frick," as it is now called in Pittsburgh. Thus far the men have been outgeneraled, the machinists, mechanics and engineers having made their own terms. The Steel mills running under the Amalgamated scale are Jones & Laughlin, and Oliver (who has signed) in Pittsburgh, the Bellaire and Mingo in the Wheeling district and Belleville in Illinois. We are advised that no signatures are expected at Wheeling for a week or two. The Open Hearth works running under Amalgamated scale are Linden, Jennings Brothers, Apollo and Kirkpatrick. The Iron mills working under the Amalgamated are much more numerous, and among them the only important one which has signed thus far is the National Tube Works. The Wire-Rod and Sheet mills have practically signed. The men have abandoned the effort to have two weeks' holiday in July, thus putting some pressure on the recalcitrant manufacturers. It should be understood, also, that those who sign the new scale receive the benefit of any concessions subsequently made. Looking over the whole field, there seems little prospect that the capacity East and West which will not be affected will not be fully able to cope with the current demand. The Lehigh mills in eastern Pennsylvania have announced a lowering of wages.

Probably the most interesting matter in connection with the markets of the country, taken as a whole, is the fact that the large Western Agricultural Implement makers are arranging for a 12 months' supply of Raw Materials. They have been trying to buy Foundry Iron for a year's delivery at present prices, but have found some Southern makers unwilling to commit themselves beyond this year. They are figuring in Chicago on about 20,000 tons of Bars, and one of them has already bought there last week 7000 tons of Merchant Steel.

The lowering of vessel rates on Ore to Cleveland is interesting principally because some of the large Ore contracts by buyers this year were made on the basis of a guarantee of rates by the Steel works. It may be of interest to note also in this connection a somewhat unusual series of transactions made a few weeks since, but not yet alluded to in print. A very large concern in Pittsburgh bought 50,000 tons of Bessemer Pig from four makers, two of them in Pittsburgh and one of them in the Mahoning Valley, paying for the Iron in Lake Superior Ore.

In Pig Iron there has been quite an active move in the Eastern primary markets, Chicago noting a number of renewals of contracts for local Coke at low prices. In the East it is practically decided that a cut of $1 per ton will be made. Pittsburgh records some sales of Bessemer at a shade under $14.

Billets, Rods and Rails are dull in all markets, and the only transactions in Old Materials which have come to the surface are 2000 tons of Old Rails at $18.25, Chicago, under special circumstances, allowing of a slightly higher price than the market.

Copper is not holding its own. Tin is speculatively active, while Lead is arousing more interest.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 80 Dearborn street, CHICAGO, June 29, 1892.

The continued excessive rainfall of the past week has caused considerable interruption to transportation and to some extent interferes with building operations and other outdoor work affecting some branches of the Iron trade. The interruption is, of course, but temporary, and may result hereafter in increased orders for material of different kinds, but just at present it is very annoying to those who are anxious to have their business continue in good condition.

Pig Iron.—The general situation is certainly no worse than it was, but on the contrary presents features of encouragement. Local Coke Iron has been quite active the past week. Sales are noted aggregating 5000 to 6000 tons for scattered deliveries. The business can hardly be called new, as it consists largely of renewals of old contracts. Inquiries are fairly good, indicating further purchases in the near future. More Iron is now being shipped from the local furnaces than was the case about a month or so ago, indicating increased consumption. Prices show no tendency to advance, but maintain the level of the past with little indication of any lower point being reached unless conditions occur which are not now anticipated. Southern Coke Iron is rather quiet, which is only to be expected in view of the recent large purchases. The Charcoal situation appears to be very firm. The contest of endurance between the large malleable manufacturers and the Charcoal producers bids fair to settle itself in favor of the latter, who have maintained a firm front so long that they have evidently but a little longer to hold out. Large transactions have occurred in Charcoal Iron in other centers, so that the available supply is being narrowed for those who must use this class of Iron. Smaller consumers realize this state of affairs and are buying as their wants require at current market rates, with the evident belief that they will not be able to do better by postponing their purchases any longer. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal	$16.50 @ $17.00
Local Coke Foundry, No. 1	14.50 @ 15.00
Local Coke Foundry No. 2	14.00 @ 14.50
Local Coke Foundry No. 3	13.50 @ 14.00
Local Scotch	15.00 @ 16.00
Ohio Strong Softeners	16.25 @ 17.00
Southern Coke No. 1	15 00 @ 15.50
Southern Coke, No 2	13.60 @ 14 00
Southern Coke, No. 3	13.25 @ 13.60
Southern, No. 1 Soft	13.50 @ 14.00
Southern, No. 2, Soft	13 25 @ 13 50
Southern Gray Forge	12 75 @ 13.25
Southern Mottled	12 75 @ 13 25
Tennessee Charcoal, No. 1	17.50 @ 18.00
Alabama Car Wheel	21.00 @ 23.00
Coke Bessemer	@ 16 00
Hocking Valley, No. 1	17.00 @ 17.50
Jackson County Silvery	17.00 @ 17.50

Spiegeleisen.—The demand for Spiegel has latterly been very light, but manufacturers firmly maintain the price of 20 % at $28.50.

Bar Iron.—The Bar-Iron situation is turning more in favor of the manufacturers. It is very difficult now to find any of the Ohio mills willing to take contracts for reasonably early delivery. Mills located nearer this market have picked up considerable business in the past week. Among the transactions reported is one for 1000 tons of Car Iron. Considerably more business could be done if the mills were in a position to guarantee delivery within the next six weeks. The large agricultural implement works are endeavoring to place orders for the deliveries covering the next 12 months, but find some difficulty in securing bids at satisfactory prices from mills having an established reputation. They are anxious to place orders at a little under present quotations, while the mills want a slight advance. Contracts in this way aggregating over 20,000 tons

are in sight. Part of this business may be turned to Steel, but the Iron contracts will certainly cover a large part of the amount stated. The ruling rate on recent transactions has been 1.60¢, half extras, Chicago, for Common Iron. Such of the valley mills as have been in shape te take orders have refused anything less than 1.50¢, at mill, for the Straight Bar orders. Soft Steel Bars continue to be quoted at 1.70¢, Chicago, from mill. Jobbers are quoting Bar Iron from store at 1.75¢ @ 1.80¢, and Bar Steel at 1.90¢ @ 2¢.

Structural Iron.—Figuring is now being done on a number of large buildings, one or two of which may be closed this week. The Beam transactions of the past week covered a few contracts of 300 to 500 tons, with a great many smaller orders. Prices are firmer on Beams in consequence of the expected shut down of Western mills, and are now quoted at 2.05¢ @ 2.25¢, Chicago. A considerable amount of Bridge work is in sight, some of which will be placed the latter part of this week. The elevated railroad for the World's Fair grounds, which will be several miles in length, will take a large quantity of Plates, Angles, &c. Another contract is about to be placed, comprising some 2000 tons of Bridge material. Mill shipments of Angles are quoted at 1.90¢ @ 2.10¢, Chicago; Sheared Plates, 2¢; Universal Plates, 1.90¢; Tees, 2.35¢ @ 2.40¢. Small lots from store sell at an advance on these prices.

Plates, Tubes, &c.—The boiler makers' strike has not ended, but the shops are again running tolerably full, the owners being able to secure more men from week to week. It now looks as if the workmen would be defeated in their contest. The demand for Plates is running about the same as last week. Current business is satisfactory, but large orders are rather scarce. This, of course, is due to some extent to the refusal of mills to accept carload orders or larger for early delivery. The situation in Boiler Tubes remains as it was, the local supply being very largely in the hands of one house. Quotations from stock are as follows: Iron Sheets, Nos. 10 to 14, 2.40¢ @ 2.50¢; Steel Sheets, $2.50¢ @ 2 75¢; Tank Steel, 2.20¢ @ 2.40¢; Flange Steel, 2 75¢ @ 3¢; Boiler Tubes, 65 % @ 75 % discount, according to the character of the order.

Sheets.—The situation in Black Sheets is becoming more difficult to describe, as so many mills are out of the market for the present, and others are refusing to consider inquiries for early delivery. It is possible that some mills may take orders for No. 27 Iron at 2.75¢ at mill, but they are very few. Prices are gradually working upward, as might be expected under the circumstances. Jobbers are quoting on a basis of 3.20¢ for No. 27 Iron, but say that this rate will be advanced by the time their regular fall trade sets in. Galvanized Iron is firm and jobbers are no longer selling at the extreme prices which recently prevailed. An effort is being made to work the price up to 60 and 10 % for Juniata quality from stock. The manufacturers report a continued good demand, which is in some cases beyond their ability to supply, owing to the expected shut down. They now ask 70 and 5 % @ 70 and 7½ % for delivery within the next month or two.

Merchant Steel.—Contracts were placed last week for about 7000 tons of special Steel Shapes by an agricultural implement works in the vicinity of Rock Island, covering requirements for the next 12 months. Other large inquiries are in the market and the amount of business closed in this line during the next two or three weeks promises to be very large. Competition is keen for this class of work, but, as before indicated, prices are not quite down to the low level which was reached last year. Mill quotations for Open-Hearth Machinery, Spring and Tire Steel are unchanged at 2¢ @ 2.25¢, Chicago. Dealers quote from store Open-Hearth Spring Steel, 2.50¢; Tire, 2 25¢ @ 2.30¢; Crucible Spring, 3.50¢ @ 4¢; Crucible Machinery, 4 50¢ @ 5¢; Tool Steels, 6.50¢ @ 8¢ and upward, according to quality.

Billets and Rods.—The past week has shown renewed activity in these markets, and inquiries approximating 17,000 tons of Rods have resulted in sales of between 11,000 and 12,000 tons, and while the price of $34 50 last quoted has been somewhat shaded, the willingness of consumers to buy in large quantities and the unwillingness of sellers to sell as far ahead as buyers were willing to buy indicates a very much improved condition of affairs. There are inquiries in the market for round lots of Steel Billets, and some small sales have been made very close to our last quotations, and some of the larger negotiations are likely to be brought to a head any day; while the market remains at $24.50, the indications are that this price is the very bottom and will not be shaded.

Rails and Track Supplies.—Business in Steel Rails is improving and local manufacturers look forward to increased demand from this time. The past week witnessed the closing of quite a number of contracts, but among them were no very large transactions. The rumor is denied that the Illinois Steel Company recently received a very large order for Rails. Prices are continued at $31 @ $31.50 for standard sections. Splice Bars continue to be in good demand in reasonable quantities at 1.70¢ @ 1.80¢ for Iron or Steel, according to the buyer. Track Bolts with Hexagon Nuts are quoted at 2.60¢ @ 2.70, according to quantity. Spikes continue to be held at 2.10¢ @ 2.15¢.

Old Rails and Wheels.—Sales are reported amounting to 2000 tons of old Iron Rails at $18.25 for deliveries spread over the next three months. These rails have been sold at a little above the present market value, but special circumstances are said to have governed the price. Under ordinary conditions it is believed that Old Rails could be purchased here at possibly under $18. Old Steel Rails have been sold at $13 for short pieces, while longer lengths are held at $14 @ $15, according to their condition. Old Car Wheels have been very quiet, with holders asking $14.50 @ $15 50, according to quantity.

Scrap.—The situation of Old Material is difficult to report. On the one hand, railroads and manufacturers find much difficulty in disposing of accumulations of Scrap as rapidly as they would desire, except at prices which are far below the intrinsic value of the material as related to the prices going for finished products, while on the other hand consumers who occasionally enter the market are unable to purchase from dealers at prices which are reported to be current. Dealers quote selling prices as follows, per net ton: No. 1 Railroad, $16 @ $16.50; No. 1 Forge, $15 @ $15.50; No. 1 Mill, $11; Pipes and Tubes, $11; Horseshoes, $16; Sheet Iron, &c., $7; Cast Borings, $5 75; Wrought Turnings, $8; Axle Turnings, $8.50 @ $9; Machinery Cast, $11.50 @ $12; Stove Plate, $9; Malleable Cast, $10; Car Axles, $18; Fish Plates, $17.25; Mixed Steel, gross ton, $10.50 @ $11; Coil and Leaf Steel, gross ton, $15.50. These are the prices asked by those having stocks and which parties are obliged to pay who purchase on time. Cash sales, which are now rather rare, would be made at better rates, and brokers who are not carrying stocks would also sell closer on such material as they are handling. A very fine lot of Railroad Wrought was sold direct to a consumer the past week at the equivalent of $15.50, net ton, Chicago, cash. Only two dealers in this market are known to have any considerable stock of Wrought on hand, the others having managed to clean up their yards. The small mills recently started in Indiana have taken quite a quantity of Old Material recently. The failure of a local Scrap dealer to-day will throw a considerable quantity of Mill Scrap on the market. It is said that he was carrying in the neighborhood of 1000 tons of this material.

Metals.—The Copper market has been very flat. Carload lots of Lake Copper continue to be held at 12½¢, and less than carload lots 12⅝¢. Casting Copper is quoted at 11⅝¢ in carload lots, and 11.50¢ in small lots. The inquiry for Spelter is very good, and some large sales have been made. One sale amounted to 250 tons, which was closed at a shade under the open quotation. It is now quoted at 4.70¢ spot, and 4.75¢ @ 4.80¢ futures. Brokers in Pig Lead report that July Lead is almost impossible to get, simply because the capacity of most of the refiners will be taxed to fill what orders they have in hand. This market opened very quiet with offerings at 3.97½¢, and sales of some 400 tons at that price and 4¢. On Wednesday signs were visible of a shortage in the metal, and values continued to rise until at the close prices were firm at 4 10¢ @ 4 15¢ asked for Desilverized, with little offering.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., June 28, 1892.

One half of the year has passed, which, on the whole, has been a source of serious disappointment to those engaged in the manufacture of Iron and Steel. The volume of business would ordinarily be considered large, but the increase in production has been so much larger that prices have been weak, almost without a single reaction. At this writing there are some slight indications of a check to the downward tendency in Finished Material, but Pig Iron is weak, and the general feeling is restless and unsettled. Something will doubtless depend upon the arrangements made in regard to the labor scale, but for the present there is no reason to suppose that prices in the immediate future will show very much change either for better or worse. The one thing that seems pretty well assured is that the fall trade will be larger than the one during the first half of the year.

Pig Iron.—The feeling in this department is very weak, and in spots prices are a little lower. Standard brands make a comparatively good showing, but even these are unsettled, and it is a serious question with makers whether to keep on making Iron and meet outside competition or blow out some of their furnaces. Whatever may be the outcome later on, the immediate outlook is certainly not encouraging, and lower prices, temporarily at all events, are not improbable. Considering how very low quotations are already, it seems impossible that there can be anything lower, but it is the constant chipping off, a little here, and a little there, and as the process has been continuous for the past six months, lower quotations are made almost imperceptibly. Of course there must be a change sometime, and as prices are at the lowest ever known, and cost at a point which seems to admit of no further reduction, it is not unreasonable to assume that the point at which selling prices will be adjusted in proportion to cost is not far distant. The coming month is likely enough to be one of weakness and irregularity, but that any general break in prices will be met with is an extreme improbability. Some leading companies are talking of $1 reduction, but as that has been more than anticipated in other brands, an annoucement of such revision of prices will have little or no effect on the general market. Meanwhile quotations are about as follows, subject to the

usual reductions on Southern Iron when delivered at points 50 to 100 miles south or west of this market:

American Scotch, No. 1x	$17.00 @ $17.50
American Scotch, No. 2x	16.00 @ 16.50
Standard Penna (Lake Ore), No. 1x	15.50 @ 16.00
Standard Penna. (Lake Ore), No. 2x	14.50 @ 15.00
Standard Penna. (Lake Ore), No. 2 plain	13.50 @ 14.00
Medium Quality, No. 1x	15.00 @ 15.25
Medium Quality, No. 2x	14.00 @ 14.50
Standard Virginia, No. 1x	14.50 @ 15.00
Standard Virginia, No. 2x	14.00 @ 14.50
Medium Va. and Southern, No. 1x	14.25 @ 14.50
Medium Va. and Southern, No. 2x	13.75 @ 14.00
Standard Penna. and Virginia Forge	13.50 @ 14.00
Ordinary Forge	12.75 @ 13.00
Hot-Blast Charcoal	18.50 @ 21.00
Cold-Blast Charcoal	24.00 @ 26.00

Muck Bars.—Market unsettled, but there is so little demand that prices are barely maintained. Nominal prices are $24 @ $24.50 at mills, but in some cases sales have been made at the inside figure delivered, although under ordinary circumstances makers would stand out for at least 50¢ @ 75¢ more money.

Steel Billets.—The prospect of an amicable arrangement with labor in the West has taken some of the stiffness out of the market for Billets and Slabs. Nominal prices are $24.75 @ $25, delivered at near-by points, but it would be impossible to place large lots at these figures. One or two 500 or 1000 ton lots have been taken at figures supposed to be near to $24.75, but for fall deliveries buyers' ideas are not over $24.50, and bids at that figure are not made with very much freedom. The disposition for the present is to hold off, under the impression that the low prices of pig metal will be reflected later on in quotations of Billets, &c.

Steel Rails.—Market not specially active, although there is rather more inquiry, and a somewhat larger business—chiefly in small lots An order for 40,000 tons is being competed for by foreign concerns, who have expressed their willingness to accept bonds, providing they secure the order for the Rails. It is, therefore, purely a matter of finance. If the money can be raised in this country the order will be placed here, otherwise it goes to Belgium, but the road will be built. Prices unchanged at $30, f.o.b. cars at mills.

Bar Iron.—The demand has been active during the past week in anticipation of a possible scarcity during the coming month. There is some talk of difficulties with labor at several of the mills hereabouts, but it is extremely improbable that any extended fight will be made, as the demand is not large enough to keep all the mills going, and the price not remunerative enough to induce capital to recede from the position it has assumed. Meanwhile the market is stronger, but as already intimated, this is due more to temporary influences than to any actual change of conditions. Prices remain at 1.65¢ @ 1.70¢ for city deliveries, and from $\frac{1}{20}$¢ to $\frac{1}{10}$¢ less at interior points.

Plates.—A very encouraging degree of activity may be noted at some of the Plate mills, and in nearly all cases slightly better prices are being realized. Two or three leading concerns have taken in a very large amount of bridge work, and for several weeks, if not for months, to come they will be virtually out of the market. In other cases, while there has been no accumulation of work, the demand for small lots is very much better, so that the outlook is regarded with much hopefulness. Prices are still lower than they ought to be, but manufacturers try to keep as near to the following figures as may be possible:

	Iron	Steel.
Tank Plates	1.80 @ 1.90¢	1.75 @ 1.85¢
Shell		2.10 @ 2.20¢
Flange	2.70 @ 2.90¢	2.30 @ 2.40¢
Fire Box	3.00 @ 4.00¢	2.60 @ 2.80¢
Special qualities		3.25 @ 3.75¢

Structural Material.—There has been quite a good deal of business placed recently, and some of the mills are very much crowded, while in other cases the position is just the reverse. There is a large amount of work in prospect, however, and as competition will be less keen there ought to be a general filling up without further cutting in prices. Some who are independently situated as regards work on hand are already asking more money, but there is no difficulty in placing orders at last week's prices, viz.: From 1.80¢ to 1.85¢, delivered, for Bridge Plates; 1.80¢ @ 1.90¢ for Angles, and 2¢ @ 2.20¢ for Beams, Channels or Tees, price depending on size of order.

Sheet Iron.—A good deal of activity is reported, and, with but few exceptions, mills have all the work they can handle. Prices unchanged, and for best makes quotations are about as follows:

Best Refined, Nos. 14 to 20	2.40¢ @ 2.60¢
Best Refined, Nos. 21 to 24	2.90¢ @ 3.00¢
Best Refined, Nos. 25 to 26	3.10¢ @ 3.15¢
Best Refined, No. 27	3.30¢ @ 3.40¢
Best Refined, No. 28	3.40¢ @ 3.50¢

Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ¼¢ lower than are here named:

Best Soft Steel, Nos. 14 to 20	3¢ @ 3⅛¢
Best Soft Steel, Nos. 21 to 24	3¼¢ @ 3⅜¢
Best Soft Steel, Nos. 25 to 26	3½¢ @ 3¾¢
Best Soft Steel, Nos. 27 to 28	3¾¢ @ 4¢

Best Bloom Sheets, ¼¢ extra over the above prices.

Best Bloom, Galvanized, discount	@ 70 %
Common, discount	@ 72½ %

Old Material.—Market very dull, and prices difficult to quote, as much depends on whether the sale is under pressure to realize or in response to a legitimate want. Nominally, quotations are about as follows, but, as already stated, there is a good deal of irregularity. Iron Rails, $19.50, delivered; Steel Rails, $15.50 @ $16.50, delivered; No. 1 Railroad Scrap, $17.50 @ $18, Philadelphia, or for deliveries at mills in the interior $17.50 @ $18.50, according to distance and quality; $12.50 @ $13 for No. 2 Light; $13 @ $14 for best Machinery Scrap; $13 @ $14 for Wrought Turnings; $9 @ $10 for Cast Borings, and nominally $22 @ $24 for Old Fish Plates, and $15 @ $16 for Old Car Wheels.

Wrought-Iron Pipe.—Sales are not being pressed as much as they were some time ago, but requirements are freely met at 5 % @ 10 % less than nominal discounts, which are as follows:

Butt-Welded Black	57½ %
Butt-Welded Galvanized	47½ %
Lap-Welded Black	67½ %
Lap-Welded Galvanized	55 %
Boiler Tubes, 2¼ inch and under	60 %
Boiler Tubes, 3 to 6 inch	65 %
Boiler Tubes, 7 inch and larger	55 %

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts.,
CINCINNATI, June 29, 1892.

There has been less activity in the Pig Iron market during the week, but there was a fair volume of consumptive orders which in the aggregate were about 15,000 tons and embrace nearly all kinds of Iron for sale in this market. Standard brands of Iron continue to be firmly held, but it is to be observed that they are not selling in a large way and while full prices are realized for small lots, the general market cannot be said to have improved. The fact that there have been liberal sales here and in other Western markets during the month of June causes more confidence on the part of holders, but does not induce buyers to take hold any more freely. There is no great urgency to sell, but it is well understood that Iron can be bought at quotations for the remainder of this year, while buyers contend for longer deliveries, and it is rumored that they have in at least one instance secured a moderate quantity for delivery up to May next, but generally an advance is insisted upon for anything beyond this year. The more liberal buying of Iron in small lots for current consumption is taken as an indication that consumers are not receiving as much as they have been on previous contracts, and that when the market turns they will be anxious buyers for forward delivery. There appears to be an undertone of confidence, but at the same time there is plenty of Iron on hand that sellers would be glad to see go into consumptive channels promptly. Quotations are as follows:

Foundry.

Southern Coke, No. 1	$13.75 @ $14.00
Southern Coke, No. 2	12.50 @ 13.00
Southern Coke, No. 3	12.00 @ 12.50
Ohio Soft Stone Coal, No. 1	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2	15.00 @ 15.50
Mahoning and Shenango Valley	16.60 @ 17.25
Hanging Rock Charcoal, No. 1	19.75 @ 20.00
Hanging Rock Charcoal, No. 2	19.00 @ 19.50
Tennessee and Alabama Charcoal, No. 1	16.50 @ 17.00
Tennessee and Alabama Charcoal, No. 2	15.50 @ 16.00

Forge.

Gray Forge	11.50 @ 12.00
Mottled Neutral Coke	11.25 @ 11.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	18.75 @ 19.00
Lake Superior Car Wheel and Malleable	17.75 @ 18.00

Cleveland.

CLEVELAND, OHIO, June 27, 1892.

Iron Ore.—The buying movement has been a little less pronounced during the past week, although considerable Non-Bessemer Ore has been sold at prices considerably shaded from last year's quotations. Recent sales have been fully 10 % below those signalizing the opening of the market several months ago. The total sales to date may aggregate 4,500,000 tons, although this is doubtful. A few thousand tons of Red Hematite Bessemer have been sold at about $4.25, lower lake delivery, and a few sales of high-grade Specular Ores are reported. Nominal quotations are as follows:

No. 1 Specular and Magnetic Ores, Bessemer quality	$5.00 @ $6.00
No. 1 Specular and Magnetic Ores, Non-Bessemer quality	4.15 @ 4.65
Red Hematite Ores, Bessemer quality	4.25 @ 4.50
Red Hematite Ores, Non-Bessemer quality	3.40 @ 3.80

There has been a great fight over vessel rates during the past week, and the Escanaba rate has been forced back to 70¢ ₱ ton, with $1.05 as the charge from the head of Lake Superior. About 68,000 tons of Ore were unloaded on the local docks during the past week, as compared with only 8000 tons for the same week in 1891. The total receipts at all lower lake ports last week aggregated close upon 160,000 tons, as against 30,000 tons sent down in the same seven days last year. The shipments to furnaces keep up well, 30,000 tons having gone forward last week, while for the same week in 1891 only 21,000 tons were shipped away. Dealers look for an active buying movement early in July, at prices considerably shaded from those announced when the market was unexpectedly opened in February. Not even half of the Ore to be mined this year has yet been sold, and in the present condition of the Pig-Iron market no improvement in prices can be expected. Non-Bessemers are said to be selling with considerable freedom this week at $3.40 @ $3.65, Cleveland delivery.

Pig Iron.—Only a few scattering sales are reported, but the decrease in the amount of stocks on hand encourages dealers to believe that a change for the better is near at hand. All in all, the

record of the past seven days is an improvement over that of the preceding week, although the amount of Iron sold was small. Dealers look for better prices early in July, and this, of course, means a better demand. It seems almost certain that the heavy cut in production will bring about this result. Present quotations are as follows:

Nos. 1 to 6 Lake Superior Charcoal	$17.50 @ $18.05
Nos. 1, 2 and 3 Bessemer, per ton.	15.00 @ 15 20
No. 1 Strong Foundry, per ton..	15.00 @ 15 50
No. 2 Strong Foundry, per ton..	14.00 @ 14.50
No. 1 American Scotch, per ton.	..... @ 15.60
No. 2 American Scotch, per ton.	.....@ 14.60
No. 1 Soft Silvery, per ton.....	15.50 @ 16.50
Mahoning and Shenango Valley Neutral Mill Irons, per ton....	13.50 @ 14.00
Mahoning and Shenango Valley Red Short Mills, per ton.....	14.00 @ 14.50

Old Rails.—No change of importance has occurred, and Old Americans are to be had in ample quantities at $19 @ $19.50.

Barb Wire.—The demand is excellent and the mills are crowded to their full capacity. The Wire manufacturers are much elated over the outlook for the season.

Nails.—There is a fair demand, and Steel Wire Nails are still quoted at $1.70 ℔ keg in stock. Cut Nails are in fair demand at $1.65 ℔ keg.

Scrap.—The market is dull and prices are uncertain. Quotations are nominally as follows: No. 1 Railroad Wrought, $16.25 @ $16.50; Cast Scrap, $12 @ $12 25; Wrought Turnings, $11 @ $11.50, Cast Borings, $8 @ $8.50.

Bar Iron.—The market continues active, and the mills are well engaged. Prices are unchanged, 1.65¢ being still paid at the mills.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, June 28, 1892.

The question as to whether the various wage scales which expire on the last day of this month will be amicably arranged between the manufacturers and the Amalgamated Association continues to be widely discussed, not only by those directly interested, either as workmen or employers, but by the entire business community as well. In a city like this, where the manufacture of Iron and Steel is the chief and leading industry, a shut down of the mills causes hardships in every other class of business. For this reason every move made by either side that has a bearing on the settlement of the labor question for another year is watched with intense interest. Since our report of last week, some conferences have been held between manufacturers and workmen, but without result. As matters look now a strike in many of the mills is inevitable. It is believed, however, that the Amalgamated scale will be signed by some of the mills during the present week, which for various reasons are not in position to stand a siege of idleness. The situation at Homestead is grave in the extreme, and unless the unexpected happens, a strike is sure to come. Every preparation has been made by the Carnegie Steel Company, Limited, to fortify their position in case the conflict should be a prolonged one. Ample arrangements have been made to protect their large interests at Homestead in case trouble should arise between their workmen and the strikers. All indications point to a bitter conflict and a long strike between the firm and their workmen, unless a settlement should be reached at the last minute, which, however, is not expected. The situation here at the present time is a precarious one, and regrets are expressed on all sides that a peaceful settlement of the difficulties was not effected. There has been little change in the Iron or Steel markets since our last report. Mills everywhere are making desperate efforts to clean up all orders on hand before July 1, in order to be prepared for the coming siege of idleness. In many lines buyers have largely anticipated their wants, and this has caused a stiffening to some extent in prices. It is not expected that there will be much done in July or August, although, as stated above, some of the mills will sign the Amalgamated scale during this week and continue in operation.

Pig Iron.—The prospective shut down of the mills on account of labor troubles is having the effect of causing furnace operators to redouble their efforts to dispose of their product, with the result that prices have weakened to a visible extent. The offering of favorable prices to buyers, however, has not had the effect of stimulating sales, and no large transactions for the week under review are reported. The recent activity in the sales of Forge Iron, caused by the mills working up to the limit of their capacity, has disappeared, and this brand of Iron is now as dull as the other kinds. The large reductions in stocks and output, as shown by recent reports, are received by the trade as an indication that the situation will soon improve and that bottom prices have probably been touched. It is also believed that as soon as present labor troubles have cleared away a buying movement will set in, as it is known absolutely that stocks in the hands of consumers are very small on account of the hand to-mouth buying policy which has been prevalent for so long. Within a week or ten days Mary stack of the Ohio Iron and Steel Company at Lowellville, Ohio, will be closed down for repairs. A new bosh will be added and some other improvements made. This furnace has been in successful operation for more than two years and in that time has made over 100,000 tons of Ohio Scotch Foundry Iron, of which 86½ % was strictly No. 1. Another stack in the Shenango Valley will probably go out early in July for repairs. Sales for the week under review were confined to small lots and at prices ruling the previous week, which we quote as follows:

Neutral Gray Forge	$12.60 @ $12.75,	cash
White and Mottled	12.25 @ 12 50,	"
All-Ore Mill	12.50 @ 12.75,	"
No. 1 Foundry	14.35 @ 14.60,	"
No. 2 Foundry	13 35 @ 13 60,	"
Bessemer Iron	14.00 @ 14.15,	"
Cold-Blast Charcoal	24.00 @ 24.25,	"

We report a sale of 5000 tons of Bessemer, equal deliveries from July to November, at $14.15, delivered to buyer's mill; 3000 tons of Bessemer for July, August and September delivery, at $14, delivered and a number of other sales ranging from 500 to 1000 tons for delivery from July to September at prices ranging from $14 to $14.10. It is reported that $14 has been shaded slightly in several cases where the Iron was for prompt delivery and a favorable freight rate was available We also note a sale of 500 tons of Gray Forge at $12.65, delivered, for July and August delivery.

Ferromanganese.—The market does not show any change; a fair amount of domestic is being sold at prices ranging from $62 to $62.50, delivered.

Soft Steel Billets.—As we note elsewhere in this issue, the Amalgamated Association has rescinded the action taken some time since by which all mills under its jurisdiction were to remain idle for a period of two weeks, to date from the first Monday in July. As the recent sharp advance in the price of prompt Billets was brought about by the expectation that all Steel plants would be idle during this period, it is probable that this action of the Amalgamated Association will check any further advance in the price of Billets. Should one or two mills making Billets sign the Amalgamated Steel scale, a decline in prices may be the result. Of course there may not be any signers to the Steel scale for some time yet, but it is impossible to tell just what will be done within the next week in this respect. Billets for prompt delivery continue to command from $23.50 to $24, and in one case the last named price has been refused. We are not advised of any contracts being closed for Billets for late delivery.

Steel Rails.—Contrary to expectations, no change was made in prices at the meeting of the Steel Rail Association held last week. It is not expected that the Edgar Thomson mill will participate in the coming shut down of the other mills, as the wages scale in force at that plant was agreed to in January last for a period of three years, and as repairs are not necessary, it is thought this mill will continue in operation right along. Prices remain unchanged, being $30, f.o.b. at mill, for standard sections.

Wire Rods.—The movement in Wire Rods is very slow, little or no buying doing when for immediate delivery. Mills are well sold up for some time yet, and buyers seem to be fixed in the same way. For Rods for delivery after July $31.75 @ $32 is asked, although one or two makers state that they will not book any orders for future delivery at less than $32 at mill. The Wire Rod makers and the Conference Committee of the Amalgamated Association held a meeting last week for the purpose of arranging a wage scale for Wire Rod mills. It is understood that several discrepancies exist which the makers are anxious to have remedied before the scale is signed. It is not expected that there will be any trouble, however, in settling these points of difference, and it is believed that the Wire Rod scale will be arranged without any difficulty.

Steel Plates.—The heavy buying for the past two or three weeks in anticipation of the shut down of the mills is about over. It is understood that makers have cleaned up orders pretty well and are now in position to close down for a considerable length of time. The active demand caused by buyers largely anticipating their wants has stiffened up prices considerably, but we make no change in our quotations of last week, which are as follows: Flange, 2¢ @ 2.10¢; Fire Box, 3.50¢ @ 3.75¢; Shell, 2¢ @ 2.10¢; Tank, 1.75¢ @ 1.85¢, f.o.b. Pittsburgh.

Structural Material.—The large demand brought about by buyers anticipating their wants has stiffened prices to some extent. Should a lengthy shut down of the mills making Structural Shapes take place an advance may come, as we are advised that stocks are pretty low. We repeat quotations of last week, as follows: Beams and Channels on a basis of 1.90¢ @ 1.95¢ for desirable orders and 2¢ @ 2.05¢ for small lots; Angles, 1.80¢ @ 1.85¢; Universal Mill Plates, Iron, 1.80¢ @ 1.90¢; Universal Mill Plates, Steel, 1.80¢ @ 1.90¢; Tees, 2.35¢; Refined Iron Bars, 1 65¢ @ 1.70¢; Steel Bars, 1.65¢ @ 1.70¢; Sheared Bridge Plates, 1.95¢ @ 2¢.

Merchant Steel.—A fair demand for the different grades is going. Orders for agricultural Steel have picked up considerably of late, and a good business is looked for from now until the close of the season. A very satisfactory demand for the different grades of Tool Steel is going, and as a whole the situation is much better than a month or six weeks ago. Competition among the mills keeps prices from advancing to any great extent, but in some lines better figures are being obtained. We quote as follows: Tool Steel from 7¢ up, according to grade; Crucible Spring Steel, 3¼¢ @ 4¢; Crucible Machinery Steel, 4¼¢

@ 5½¢; Spring, Tire and Machinery Steel from 2¢ to 2.40¢, according to quality.

Barb Wire.—There is nothing new to report. A number of the mills will doubtless close down in July for repairs. Orders are pretty well cleaned up, in order to be prepared for this stoppage. Prices remain as follows: $2 25 @ $2.30 for Painted and $2.65 @ $2.70 for Galvanized, f.o.b. at factory, the lower price named being in carload lots.

Muck Bar.—There is no improvement in demand, and in view of the coming shut down of the mills none is expected. While some trade papers continue to quote Muck Bar at $24 @ $24.50, delivered at buyers' mill, we are informed that no Muck Bar of standard quality has been sold at less than $24 50, and in some cases a slightly better price than this has been obtained. We quote best grade of Muck Bar at $24.50, delivered at buyers' mill.

Wire and Cut Nails.—As in the case with other lines of manufacture, the Wire and Cut Nail mills expect a shut down for a considerable length of time, and as a result few orders for delivery during July and August have been booked. This month always has proved to be a dull month in both Wire and Cut Nails, and as it is expected that many of the mills will be idle during this two months, but few orders are being received. As an exception to other lines, the prospective close down of Wire Nail mills did not stimulate buying to any extent, which is taken as an indication that stocks in the hands of jobbers are pretty large. Prices do not show any change and we quote Wire Nails at $1.55 @ $1.60 in carload lots, while $1.65 is obtained for less quantities. The Cut Nail mills are doing very little business and have been for some time past. The demand for Cut Nails is growing less year by year, and it is believed that within a very short time a few mills will be able to take care of all the business going. We quote the market at $1.47½ @ $1.50 for carload lots, 30¢ averages, in Wheeling and Mahoning Valley districts. A few Iron Nails are still being made and we quote these at $1.50 in carload lots for 30¢ averages in Shenango Valley district.

Wrought-Iron Pipe.—With the exception of a few fair-sized orders placed during the past week there is no change to note in this industry. Prices do not show any improvement whatever, and in view of the active competition among the mills for the business being offered none is expected. It is stated on good authority that the best of feeling does not prevail among some of the members of the Wrought Iron Pipe and Tube Manufacturers' Association, and this is given as one reason for the active competition that is prevailing. There is no change in discounts and but little attention is being paid to these discounts by makers.

Skelp Iron.—The improvement in demand and also in price noted several weeks since continues, and some very fair orders are being placed. The several gas lines now being constructed are the cause of this improvement in the demand. The recent discovery of gas in large quantities in what is known as the Pinhook district, a few miles from Pittsburgh, will probably cause an active demand for large sized Pipe. This in turn will cause a good demand for Skelp. Prices are unchanged and we quote as follows: 1.55¢ @ 1.60¢ for Grooved and 1.70¢ @ 1.75¢ for Sheared, four months, or 2 % off for cash.

Manufactured Iron.—In two days from now the Amalgamated scale governing wages in rolling mills in the Pittsburgh district will have expired, and at this writing a strike in a number of the mills seems certain. It will be remembered that some time since it was printed in these columns that the Amalgamated Association would insist on a shut down of mills for two weeks to commence from the first Monday in July. We are now informed that this action of the association has been rescinded and all mills that sign the scale will be allowed to run right along or stop for repairs, as they see fit. This action of the Amalgamated Association in doing away with the two weeks shut down is looked upon by many in the trade as a very sharp move, and it is certain that had the mills signed the Amalgamated scale as promptly as it was signed last year, the two weeks shut down would have been insisted upon. As it is, however, mills that sign the scale will probably continue in operation right along and secure what trade is going. Since our report last week another conference was held between the Bar Iron manufacturers of the Pittsburgh district and the Amalgamated Association, but no results looking to the signing of the scale were obtained. The manufacturers insist on their scale based on $4.50 for puddling being adopted, while the Amalgamated Association, on the other hand insist just as strongly on the Amalgamated scale based on $5.50 per ton for puddling being adopted. Neither side seems inclined to offer a compromise, and as long as this continues a settlement is out of the question. Within the past week three firms have signed the Amalgamated scale, two of these signing the scale governing wages in rolling mills and one signing the Steel scale. The Tyler Tube & Pipe Company of Washington, Pa., and the Muncie Nail Company of Muncie, Ind., signing the rolling mill scale, the Oliver Iron & Steel Company of Pittsburgh signing the Steel scale for the converting department and the blooming mill of their Clapp Griffith plant. It is stated on good authority that a number of other signatures to the Iron scale are expected during the present week. The recent buying brought about by the coming shut down of a number of the mills has stimulated prices, and we quote No. 1 Bars of the best grade at 1.60¢ and 1.65¢. It is reported that in several cases 1.70¢ was obtained. Bars made from Old Rails we quote at 1.50¢ @ 1.55¢; Steel Sheared Plates we quote at 1.85¢ @ 1.90¢, and Iron Sheared Plates at 1.75¢ @ 1.85¢; No. 24 Sheet at 2.40¢ @ 2.50¢; all 60 days, 2 % off for cash.

Scrap Iron and Steel —Since our report of last week we are not advised of a single transaction in Old material of any kind that would aggregate even a respectable amount. Dealers in Scrap material endeavoring to make sales have offered both Iron and Steel Scrap material at exceedingly low prices, but in nearly every instance their efforts to sell were met with the remark that in view of the shut down of the mills no material of any kind was wanted. In the absence of business on which to base sales, we can only repeat our quotations of last week, which are as follows: No. 1 Railroad Wrought Scrap, $14.50 @ $15 ℔ net ton; Cast Scrap, $11 @ $11.50 ℔ gross ton; Billet and Bloom Ends, $15.50 @ $16; Cast-Iron Borings, $7 @ $7.50 ℔ gross ton; Mixed Country Steel, $13 ℔ gross ton; Railroad Coil Springs, $17 @ $17.50 ℔ gross ton; Leaf Springs, $19.50 @ $20; Old Steel Axles, $20 @ $20.50; Machinery Cast Scrap, $11.50 @ $12.

Old Rails.—As is the case with the Scrap Iron and Steel market, there is no demand for either Iron or Steel Rails. Efforts to sell Old Iron Rails in Pittsburgh during this week at $19.50 delivered at buyers' mill were unsuccessful. Old Iron Rails cannot be sold at any price, offers at $19 @ $19.50 having been declined. We repeat nominal quotations of last week, as follows: Old Steel Rails which do not require sorting, $15 50 @ $15.75; miscellaneous lengths we quote at $15 @ $15.25, and long lengths at $15.75 @ $16.

St. Louis.

Office of *The Iron Age*,
Bank of Commerce Building,
ST. LOUIS, June 27, 1892

Pig Iron.—The past week was one of the most interesting, so far as volume of business is concerned, which this market has experienced for some months past. Sales were principally made for deliveries during July and August, and while it is true prices were low, they were really no lower than the same Irons could have been purchased for two months since. The gradual shutting down of furnaces is having a beneficial effect on the output, which continues to show a steady decrease. A serious question confronts this industry, however, in the anticipated labor troubles. Should the matter resolve itself into a strike, Finished Iron, it is true, would be largely benefited. But, on the other hand, Pig Iron would receive a black eye, and prices would more than likely go even lower than at present quoted. Should this occur, however, additional furnaces would be forced to blow out and they would probably remain out until the market showed conclusively that it was in a position to stand their re-entry. Buyers should take these points into consideration in making their purchases, and by so doing may probably be able to purchase advantageously, which is a difficult thing to do in the present state of the market. Inducements by furnacemen are not so tempting as they were a few weeks since, proving to a certain extent either one of two things—that the market is in better shape, or that prices have reached a level that precludes further shaving. For ordinary quantities the following quotations prevail, which are for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$14.00 @ $14.25
Southern Coke, No. 2 Foundry,	13.25 @ 13.75
Southern Coke, No. 3 Foundry,	13 0 @ 13.00
Gray Forge,	12.25 @ 12.50
Southern Charcoal, No. 1 Foundry,	16 25 @ 16.75
Southern Charcoal, No. 2 Foundry,	15.50 @ 16.00
Missouri Charcoal, No. 1 Foundry,	14 50 @ 15.00
Missouri Charcoal, No. 2 Foundry,	14 00 @ 14.25
Ohio Softeners,	17.00 @ 17.25

Bar Iron.—A steady trade is reported by both mills and jobbers. There is an unusual amount of uncertainty prevalent, caused by the anticipated labor troubles, and jobbers particularly are undetermined what action to pursue. It is pretty generally believed that should a strike ensue it would only be of short duration, while there are many well-informed people who do not look for more than the usual shut down for repairs, &c. The local market is quiet but steady. Mills quote 1 62½¢ @ 1.65¢, half extras, East St. Louis. Jobbers quote 1.70¢ @ 1.75¢ for lots from store.

Barb Wire.—The demand continues to be fairly active, but prices are inclined toward weakness. The exteme wet weather prevailing in the West has caused some considerable let up in the demand and the season is now too far advanced to expect much improvement until the early fall months. Mills have issued a new price-list under date of 23d inst. as follows: Painted, $2.30; Galvanized, $2.75 for carload quantities. Less than car lots 10¢ ℔ cwt. additional. The above prices are subject to 60 days, or 2 % discount for cash.

Wire Nails.—This department has somewhat improved since our last report. The effort of the mills to withdraw the extreme low quotations which were freely made ten days since has been successful and it now seems quite probable that prices are in a position to be steady even if they do not advance. Local mills quote $1.75 rate for any quantity, which is an advance of about 10¢ ℔ keg over the prices quoted last week.

(*By Telegraph.*)

Pig Lead.—During the past few days this department has improved materially. A fair demand is in progress and sales are reported at 4¢. Sellers are firm at 4.05¢, with no sales, however, at this figure. It is generally thought that the advance noted will be merely temporary.

Spelter.—This metal does not change either way. Sales are light and offerings at 4.60¢ are not taken. There does not appear to be much chance of any immediate improvement in this department so far as prices are concerned.

John H. Heimbuecher, American Central Building, St. Louis, Mo., has severed his connection with the Old Colony Rivet Company, with whom he was associated some 15 years and has accepted the agency in the West for the Falls Rivet & Machine Company of Cuyahoga Falls, Ohio. With 15 years' experience Mr. Heimbuecher is in a position to appreciate the wants of the trade and to cater to the same accordingly.

Louisville.

LOUISVILLE, KY., June 27, 1892.

There has been no improvement in prices and considerable difficulty in placing Iron. Furnaces are willing to sell for deliveries throughout the year at current figures and are not hopeful for an advance. The expected action of the Pennsylvania furnaces in further reducing prices in Central Pennsylvania and New England, together with low offers of Virginia Irons, does not lead Southern furnaces to expect much assistance from that territory, and it is probable that sales of their Iron there will be temporarily curtailed. The encouraging feature of the situation is that there will be no trouble between manufacturers and the Amalgamated Association, and that increased buying will follow, as unquestionably many orders have been held in abeyance awaiting the settlement of this question. The indications of another heavy crop are such as to promise excellent business in the West, and it is felt that in the event of these expectations proving true, the Iron interest cannot but be benefited in the increased prosperity that will follow. We quote for cash, cars, Louisville:

Southern Coke, No. 1 Foundry	$13.75 @ $14.25
Southern Coke, No. 2 Foundry	12.75 @ 13.25
Southern Coke, No. 3 Foundry	12.00 @ 12.50
Southern Coke, Gray Forge	11.50 @ 12.00
Southern Charcoal, No. 1 Foundry	15.75 @ 16.75
Southern Car Wheel, standard brands	18.00 @ 19.00

Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., under date of June 27, 1892, write: There has been continued activity in Lake Superior Charcoal Iron. The purchases, however, have been more numerous, but not of quite so large volume as reported during the previous few weeks. The lots range in size from 300 to 800 or 1000 tons. Indications are now that the buying has been nearly completed, with the exception of a few of the large users, who have yet to come into the market, but the general malleable trade in nearly all sections of the country have made their contracts. It will be a matter of considerable interest to know just what the balance of Iron on hand, unsold, will be at the furnaces July 1. It certainly will show quite a large falling off. With the exception of Lake Superior Charcoal, the trade has been very quiet indeed, no large transactions for any grade of Southern or Ohio Coke Irons having been reported. The usual current demand from the smaller foundries has been kept up fairly well, with prices unchanged and quotable to-day as follows:

Lake Superior Charcoal, all numbers	$16.50 @ $17.00
Lake Superior Coke, Bessemer	16.00 @ 17.00
Lake Superior Coke Foundry, all ore	16.50 @ 17.00
Ohio Blackband (40 per cent.)	17.00 @ 17.50
Southern No. 2	15.00 @ 15.50
Southern Gray Forge	13.25 @ 13.75
Jackson County (Ohio) Silvery	17.75 @ 18.25

New York.

Office of *The Iron Age*, 96-102 Reade street,
NEW YORK, June 29, 1892.

Pig Iron.—Although the announcement will not be officially made until after July 1, there is little doubt that the prices of the Thomas Iron Company will be reduced $1 ℔ ton, so that our quotations are merely nominal. The market is exceedingly dull, sellers reporting very little business. We quote Northern brands at $15.50 @ $16 for No. 1; $14 50 @ $15 for No. 2; $13.50 @ $14 for Gray Forge, tidewater. Southern Iron, same delivery, $14.50 @ $15 for No. 1; $13.75 @ $14.50 for No. 2 and No. 1 Soft; $13.25 @ $13.50 for No. 3 Soft; $12.75 @ $13 for Gray Forge.

Spiegeleisen and Ferromanganese.—A lot of 100 tons of Wigan Ferromanganese has been freely offered in this market during the past week under somewhat peculiar circumstances by an outside party. It claimed that it was purchased under a misapprehension, due to a mistake in reading a cable code price at £10, c.i.f., instead of £11, c.i.f. It has been offered at $59 without finding any taker as yet.

Billets and Rods.—In this market there is absolutely nothing doing either in foreign or domestic.

Steel Rails.—No transactions of any consequence are reported by the Rail mills. Rumors of business for Ohio delivery, for the Great Northern and for the Pacific Coast do not seem to possess any foundation. On the 1st of this month all the mills together had about 300,000 tons on their books, and, so far as the Eastern mills are concerned, have probably gained considerably on this during June. The price remains stationary at $30 for standard sections, Eastern mill.

Manufactured Iron and Steel.—During the week contracts have been closed for two structures calling for about 1200 tons of Beams. Some round lots of Bars have also been placed with local merchants, and in some instances a slight advance has been secured. Plate orders have not been numerous or important. As yet the trouble with the Architectural Iron workers has not been serious. The principal interest centers, of course, on the situation in Pittsburgh, with indications that the contest will not be protracted, so far as the Iron mills are concerned. Nominal prices, subject to concessions on good specifications, are as follows: Beams, 2.25¢ @ 2.65¢ for small lots and 2.15¢ @ 2.50¢ for round lots, according to sizes; Angles, 1.85¢ @ 2¢; Sheared Plates, 1.8¢ @ 2.25¢; Tees, 2.30¢ @ 2.75¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.8¢ @ 1.9¢ for Tank; 2¢ @ 2.25¢ for Shell; 2.30¢ @ 2.65¢ for Flange; 2.5¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock; Refined Bars are 1.7¢ @ 1.9¢, on dock; Common, 1.6¢ @ 1.65¢. Scrap Axles are quotable at 2¢ @ 2.10¢, delivered. Steel Axles, 2¢ @ 2.1¢, and Links and Pins, 2.05¢ @ 2.20¢; Steel Hoops, 1.90¢ @ 2¢, delivered.

Track Material.—The market is very dull, with quotations as follows: Spikes, 1.90¢ @ 2¢, delivered; Fish Plates, 1.55¢ @ 1.60¢, at mill; Track Bolts, square nuts, 2.50¢ @ 2.60¢, and hexagon nuts, 2.70¢ @ 2.80¢, delivered.

Metal Market.

Copper.—Business has been slow. Negotiations with consumers reveal the fact that a majority of the larger concerns are comfortably off for supplies, and the presumption is that recent purchases from bankers' holdings have filled up quite a gap. There are indications also of contracts having been made elsewhere, including with some prominent producers, and it is no secret that certain smaller concerns have been better sellers than holders. In any event, the market for Lake Superior product has a rather flat appearance at the present time. For Ingot 12¢ stands as the popular "nominal" price, but 11¼¢ is still common in current offering and a rate at which there appears to be more sellers than buyers. Cakes and Wire Bars are quoted about ⅛¢ @ ¼¢ over Ingot, according to delivery required and size of lot. Common casting brands at 11¢ are freely offered; sales have been running light and the demand at present is not meeting former expectations. Apropos of the producers' agreement, which we discuss editorially, James Lewis & Son, Liverpool, remark in their circular of June 17:

"The nine principal mining companies in the United States have agreed among themselves that their production shall, for the year commencing July 1 next, be 100,893 tons, against 90,625 tons in 1891. The production not included in this agreement amounted to 36,160 tons in 1891, when the total was 226,785 tons. European mining companies, producing about one-half of the total production, have agreed to place a limit on their output, in some cases reducing by 5 % that of the year 1891, while in others they have been allowed an increase, amounting in one important instance to 10 %. Chilian producers are not included in the agreement, their production last year having suffered considerably from the war. We may, therefore, look for some increase from this source. Instead, therefore, of a reduced production for the coming 12 months, an increase of fully 15,000 tons appears assured; while for the year 1892 it will probably be much larger, no limit having been placed on production for the first half of the year either in the United States or elsewhere. The future of values will mainly depend upon whether the consumption will be sufficiently large to absorb this increased quantity. Should it prove equal to that of last year, it probably will, as European stocks then decreased 11,000 tons."

Pig Tin.—The movement in prices has been within decidedly narrower limits the past week, and the market seems to have developed rather steadier tone. That the controlling influence centers in just about the same localities that it did when speculation was livelier and the fluctuation in values wider, is obvious, however, and there is as much uncertainty shrouding the market. Hence ventures in futures are engaged in cautiously, and purchases for consumption gauged as closely as possible by actual requirements, since it remains to be determined whether the "bull" interest is strong enough to not only carry their present surplus holdings, but to take care of future supplies. It is suggestive in this connection that the discount on futures in the London market has been widened to £1. 10/ @ £2, whereas futures still command a premium in New York, thus lessening the chances for profitable shipments from this quarter for delivery on London "short" sales, and at the same time encouraging the suspicion that the leading manipulators may be unload-

ing futures in the foreign market while supporting spot prices there. Looked at from any point of view, the market is undoubtedly more than usually dangerous for outsiders. Transactions recorded during the past week involve a total of about 350 tons, chiefly prompt June and July delivery at 21.20¢ @ 21½¢, including some parcels purchased against sales of shipments from the Straits in the London markets. At the close bids were not above 21.15¢, net cash, for spot lots, but 21½¢ stood as low rate with sellers.

Pig Lead.—The position of buyers and sellers has been reversed during the past few days. Instead of anxiety to sell there is now a very reserved offering and supreme indifference on the part of buyers has given place to rather livelier interest. With this change there is a turn for the better in values, and, upon the whole, a more cheerful market. At from 4.10¢ up to 4.15¢ about 400 tons have been sold, while up to 4.20¢ @ 4¼¢ was realized for single carloads. Bids of 4.15¢ prevailed at the close in this market and relatively as good figures were advised from Western markets.

Spelter.—Eastern consumers are still very indifferent buyers of this metal, and, now that the European producers combination has ceased to exist, the support of possible export business has departed. As an offset to this, however, producers gain more or less advantage from good purchases latterly by Western galvanizers that promise to take up a considerable percentage for production some little time ahead. Early shipments have realized 4.80¢ @ 4.85¢ here, and the prices are quoted on favorite brands for August shipment.

Antimony.—There has been no change to speak of. Prices show no more than about ¼¢ fluctuation and dealings are still of commonplace character. We quote at 10¾¢ @ 11¢ for Hallett's, 11¾¢ @ 12¢ for LX and 14½¢ @ 14¾¢ for Cookson's, in wholesale quantities.

Tin Plate.—Roofing size Terne Plates, the spot supply and assortment of which are rather poor, command somewhat higher prices for the time being. Coke finish and Charcoals are, however, obtained without difficulty at former quotations, the supply of these being ample. In some slightly lower rates are named on ordinary Coke Finish Bessemer Steels. We quote as follows for full weights: Coke Tins—Penlan grade, IC, 14 x 20, $5.25; J. B. grade, do., $5.37½; Bessemer do., $5.25; light weights, 100-lb, 10¢ less; 95-lb, 20¢ less; 90-lb, 30¢ less than full weight; Siemens Steel, $5.37½. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75 @ $5.80; IX basis, $6.80. IC Charcoals—Melyn grade, ½ X, $6.40; for each additional X add $1.50; Allaway grade, $5.75; Grange grade, $5.85; for each additional X add $1.20. Charcoal Ternes—Worcester, 14 x 20, $5.75; do., 20 x 28, $11.45; M. F., 14 x 20, $7.37½; do., 20 x 28, $15.25; Dean, 14 x 20, $5.45; do., 20 x 28, $10.80; D. R. D. grade, 14 x 20, $5.35; do., 20 x 28, $10.40 @ $10 45; Mansel, 14 x 20, $5.30; do., 20 x 28, $10.45; Alyn, 14 x 20, $5.45; do., 20 x 28, $10.65; Dyffryn, 14 x 20, $5.65; do., 20 x 28, $11. Wasters—S. T. P. grade, 14 x 20, scarce; do., 20 x 28, $10; Abercarne grade, 14 x 20, scarce; do., 20 x 28, $9.80.

Hoadley Cochran, president of the defunct Ainsley-Cochran Foundry Company, at Louisville, Ky., and Thomas F. Smith, who was also connected with the establishment, are preparing to start up a machinery supply and brokerage business in that city.

Coal Market.

At the meeting of agents, appointed for Wednesday afternoon, the design was to advance the prices of Anthracite 15¢ @ 25¢ ℔ ton, and some were prepared to go still further, predicting that Stove would go to $5 before the snow flies. For all this there is no lack of Free Burning, and straggling lots in the harbor can be got a shade below the schedule from outside parties. Lehigh, though not in the combine, follows closely in sympathy. One lot of Lehigh Pea sold this week at $2.25. The telegraph brings news of the death of Mrs. Ario Pardee, an event having an important bearing on the settlement of an estate valued at several million dollars.

The White Star Steamship Company's contract for about 140,000 tons of Bituminous Coal, to be delivered during the ensuing year, has been awarded to the agents of the Pocahontas Coal.

The Reading collieries last week started work with four days of ten hours each, instead of nine hours, as heretofore, and all of those drowned by the recent heavy rains have resumed operations. Shipments for the week ending June 18 show a large decrease from the corresponding week last year, but the comparison since January still shows a gain of nearly 1,000,000 tons over the same time in 1891. The official statement is as follows:

	1892. Tons.	1891. Tons.
Wyoming region	480,988	499,017
Lehigh region	104,314	139,599
Schuylkill Region	230,677	264,232
Total	815,979	902,848
Total for year to date	17,707,788	16,726,992

The production in May was 3,531,000 tons, an increase of 191,586 tons, but this is said to have been unintended.

Pittsburgh papers speak of unusually large shipments to the ports on Lake Erie, equal to 27,000 tons a day.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, June 29, 1892.

Speculation in Pig Iron warrants has been moderate. Scotch prices have changed very slightly, but Cleveland advanced to 42/6, while Hematites sold at as low as 49/. It is reported that the London syndicate have transferred their holdings of warrants to other outside hands and there is yet a scarcity of the warrants for prompt delivery. The advance in Cleveland is attributed to continued diminution of stocks and consequent disinclination to sell. At present there are only 40,000 tons in warrant stores. The stock of Scotch has further declined and is now 431,000 tons. Latest quotations on warrants were 41/5 for Scotch, 42/6 for Cleveland and 49/ for Hematite.

In Pig Iron a large business has been done during the week at regular prices. Advices from the American market are still employed for speculative purposes and used to explain both declines and advances in prices

Bear operations on Continental accounts have somewhat unfavorably affected the Copper market, as also did the depression in Tin. The agreement to restrict production is having no visible effect upon the market.

No change in the Tin Plate situation. Prices are firmly held, but dealers buy sparingly, and orders are confined to small quantities for quick delivery.

There is rather more activity in some branches of the Steel trade.

Scotch Pig Iron.—No change in character of demand for makers' brands and prices remain as before:

No. 1 Coltness,	f.o.b.	Glasgow	53/6
No. 1 Summerlee,	"	"	52/
No. 1 Gartsherrie,	"	"	50/6
No. 1 Langloan,	"	"	50/6
No. 1 Carnbroe,	"	"	44/
No. 1 Shotts	"	at Leith	51/
No. 1 Glengarnock,	"	Ardrossan	50/
No. 1 Dalmellington,	"	"	47/6
No. 1 Eglinton,	"	"	46/6

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

Cleveland Pig.—Business moderate, but, owing to light supplies, makers very firm at 42/6 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—Dealings have been light and the market is weaker at 50/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Spiegeleisen.—Very quiet market and no change in sellers' price. English 20 % quoted at 77/6, f.o.b. shipping port.

Steel Rails.—Slightly more inquiry, but only moderate sales thus far. Heavy sections quoted at £4. 2/6, f.o.b. shipping port.

Steel Billets.—The market remains quiet and without change. Bessemer, 2½ x 2½ inches, quoted at £4. 5/, f.o.b. shipping point.

Steel Blooms.—Sales light and prices unchanged. Makers quote £4 for 7 x 7, f.o.b. shipping point.

Steel Slabs.—Dull market and no change in prices. Bessemer quoted at £4. 5/, f.o.b. at shipping point.

Old Iron Rails.—Business moderate and the demand slow. Tees quoted at £2. 17/6 and Double Heads at £3, f.o.b.

Scrap Iron.—No change in this line. Demand continues light. Heavy Wrought Iron quoted at £2. 10/ @ £2. 12/6, f.o.b.

Crop Ends.—Very little doing and prices as before. Bessemer quoted at £2. 12/6 @ £2. 15/, f.o.b.

Manufactured Iron.—Demand throughout continues slow and the market is without special change. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ordinary Marked Bars	8	10	0	@		...	
" Common "	6	5	0	@	6	7	6
Staff. Bl'k Sheet, singles	7	5	0	@		.....	
Welsh Bars (f.o.b. Wales)	5	10	0	@		.....	

Tin Plate.—Prices the same as last week and demand quiet. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	14/6 @ 15/
IC Bessemer Steel, Coke finish	12/6 @ 12/9
IC Siemens " " "	12/9 @ 13/
IC Coke, B. V. grade 14 x 20	12/6 @ ....
Charcoal Terne, Dean grade	12/ @ 12/3

Pig Tin.—Market closed soft at £99 15/ @ £100 for spot, and £98. 15/ for three months' futures.

Copper.—Market barely steady at the close. Merchant Bars quoted at £44. 17/6, spot, and £45. 5/, three months' futures. Best selected, £49. 10/.

Lead.—Demand moderate and the market barely steady at £10. 7/6 for Soft Spanish.

Spelter.—Market quiet, but rather steadier at £21. 15/ for ordinary Silesian.

HARDWARE.

Condition of Trade.

BUSINESS generally is referred to as of diminished volume, many of the travelers being at home, and merchants naturally disposed to purchase moderately at the end of the month and half year. There is, however, a fair trade doing in a small way and many assorted orders are reported. Seasonable goods are still moving, the trade in these lines having been exceptionally good. Prices on the whole are unchanged and the tone of the market is without special modification, although in one or two exceptional lines there is a slight improvement perceptible. Collections continue fair.

Chicago.

(By Telegraph.)

The Hardware trade is remarkably good here, considering the circumstances. The rainy season in the Northwest is not over, although an occasional day of sunshine is vouchsafed the suffering people. Whenever the rain stops orders pick up at once. The demand then experienced covers all kinds of goods, but in seasonable articles, such as Screen Doors, Window Screens, Wire Cloth and Refrigerators, the volume of business has been extraordinarily large. Jobbers, even with greater stocks than usual, have been unable to meet the calls on them, and in spite of urgent appeals to the factories are still behind in filling orders. Ice Cream Freezers have literally sold by the thousand. The supply of Wire Cloth is particularly short. The very wet weather is not regarded as a calamity of wide effect if it does not last too long. In some sections crops have been washed out by the floods, but a hundred have been benefited by the rains to one which has suffered. A little fair weather now will insure immense crops in places which have been almost barren on account of lack of moisture. Building operations have been interfered with to a great extent, yet Builders' Hardware is being ordered remarkably well. The demand for Heavy Hardware keeps up to its record for the month. Wagon stock continues scarce and dear. Collections are reported very fair in all branches of the hardware trade.

St. Louis.

(By Telegraph.)

The improvement which has been prevalent for some weeks past continues, notwithstanding the extreme warm weather which prevailed the better part of last week. The retail trade is keeping up remarkably well, and seasonable goods, of course, are largely called for. There is at present a large amount of building being done in and around St. Louis, and Builders' Tools and Hardware are in strong demand. Prices are practically unchanged, with the exception of Barb Wire, which is a trifle lower, and Wire Nails, which are now selling at an advance of about 10 cents per keg over prices quoted one week since. Collections are excellent.

Notes on Prices.

Cut Nails.—The Cut Nail market both in the East and West remains in about the same condition as at our last report. No further shrinkage in prices is reported and quotations are on the same basis as heretofore. In the West $1.50 at mill on a 25-cent average fairly represents the market, though both lower and higher prices are sometimes named. The Eastern mills are still selling under their understanding, and $1 55 at mill for Steel Nails on 30-cent average, with equalization of freight, is still the general quotation. Iron Nails are 3 cents a keg less. On carload lots a discount of 5 cents per keg is made.

Chicago, by Telegraph.—Makers of Steel Cut Nails are receiving larger specifications than for some time, indicating that jobbers' stocks are running low. If some of the idle factories do not soon start up a shortage of Cut Nails in this market seems imminent. Makers' stocks are not large enough to stand the constant drains, and some sizes are now very scarce. They quote for factory shipment $1.57½, Chicago, on 30-cent average Jobbers' prices are irregular, depending upon the character of the Hardware order of which they form a part, or else upon the assortment of sizes. The usual price from stock is $1.70 base, subject to the above qualifications.

Wire Nails.—A slightly improved condition is found in the Wire-Nail market, but prices are somewhat uneven. One or two of the mills are holding to $1.60 at mill, refusing to meet lower quotations. Other manufacturers refuse to quote a lower figure than $1.55, having withdrawn former quotations and evincing a determination to get a better price for their goods. It does not, however, appear that the quotation of $1.50 has been withdrawn by all the manufacturers, and while the market as a whole is certainly firmer, it is possible that this figure can still be obtained on large and desirable orders. Small lots from store in New York are held at $1.85.

Chicago, by Telegraph.—Jobbers are endeavoring to advance the price of Wire Nails from stock, but are not acting in concert. A leading house now quotes $1.70, but other sellers have not quite come up to this figure. The present good demand and a little firmness on the part of sellers should, however, help the situation, which cannot be agreeable to the trade in general. Manufacturers are now quoting $1.60 to $1.70, Chicago, and it would seem to be short-sighted policy to sell from stock at the same price.

Barb Wire.—The demand for Barb Wire in the East is referred to as moderate, and manufacturers are in a position to accept orders. While $2.65 for Four-Point Galvanized at mill fairly represents the market, this figure is slightly shaded, and the market is not characterized by quite so strong a tone. Small lots from store in New York are held as before.

Chicago, by Telegraph.—Barb Wire manufacturers maintain a firm front, some of them not yet having caught up with their back orders. We quote $2.35 for Painted and $2 80 for Galvanized for early delivery. Jobbers report a light trade from the Northwest, but continue to quote small lots at $2.50 for Painted, and $3.00 for Galvanized.

Loaded Shells.—The Union Metallic Cartridge Company, Bridgeport, Conn., and 313 and 315 Broadway, New York, are about to issue, under date July 1, a revised price-list of their Loaded Shells, which supersedes all previous lists. Prices are unchanged, except for Shells loaded with Nitro Powders. In the circular which accompanies the list the company state that hereafter they will load New Club Shells with Black Powder only and Smokeless Shells and Trap Shells with Nitro or Black Powder. They refer to the fact that the great demand for these goods renders it necessary to establish and strictly adhere to fixed principles of loading, and to make no variation that will in their judgment reflect in any way upon the quality of the goods. To this end they state that they must determine the proper size and kind of Wadding, the kind of Shells best adapted to Nitro Powders and the quantity of such Powders; also the quantity and size of grain of Black Powder best adapted to the various loads. Their new Smokeless and Trap Shells are primed with U. M. C. No. 3 Primers, and are intended to overcome the objections to cheap Shells when loaded with Nitro Powders. They guarantee that these new Loaded Shells will give quick ignition and complete combustion of the Nitro Powder charges. They call attention to the fact that Nitro Powders are not correctly measured by drams or bulk measure, and they will therefore hereafter label Nitro Loaded Shells in grains, and suggest that the trade adopt this change in their prices. The comparative table of Nitro Powders in drams (bulk measure) and in grains is given below. It is stated that special loads A, B and C (Black Powder) are formulated with great care and uniformity, to give high velocity, close and uniform pattern and great penetration, the essential points for a perfect trap load. The quality of the Powder is referred to, as well as the system of wadding. The list is given below and is subject to a dis-

count of 40 and 10 and 10 per cent., with an additional 2 per cent. for cash:

U. M. C. Loaded Shells, Black Powder.

New Club.—12 Gauge.

Load No.	Adapted to shooting.	Weight of Powder.	Weight of Shot.	Size of Shot.	Price per 1000.
		drs.	oz.		
110	Woodcock	3¼	1	10	$25.50
119	Woodcock and snipe	3¼	1	9	25.50
129	Snipe	3¼	1⅛	9	26.50
118	Quail	3¼	1	8	25.50
128	Quail and prairie chicken.	3¼	1⅛	8	26.50
78	Inanimate targets	3¼	1⅛	8	27.50
138	Prairie chicken	3½	1⅛	8	27.00
148	Live pigeons, &c.	3½	1¼	8	28.00
127	Ruffed grouse	3¼	1⅛	7	26.50
137	Ruffed grouse & teal	3½	1⅛	7	27.00
126	Prairie chicken and ruffed grouse	3¼	1⅛	6	26.50
136	Pintail and bluebill	3½	1⅛	6	27.00
125	Mallard	3¼	1⅛	5	26.50
135	Mallard	3½	1⅛	5	27.00
124	Mallard	3¼	1⅛	4	26.50
134	Mallard and redhead	3½	1⅛	4	27.00
154	Redhead	3⅝	1⅛	4	27.50
153	Canvas back	3⅝	1⅛	3	27.50
152	Turkey	3⅝	1⅛	2	27.50
109	Extra light loads	3	1	9	25.00
108	Extra light loads	3	1	8	25.00
107	Extra light loads	3	1	7	25.00
106	Extra light loads	3	1	6	25.00

10 Gauge.

Load No.	Adapted to shooting.	Weight of Powder.	Weight of Shot.	Size of Shot.	Price per 1000
		drs.	oz.		
240	Woodcock	4	1⅛	10	$29 00
249	Woodcock and snipe.	4	1⅛	9	29.00
269	Snipe	4¼	1⅛	9	29.50
248	Quail	4	1⅛	8	29.00
268	Quail and prairie chicken	4¼	1⅛	8	29.50
278	Inanimate targets	4¼	1¼	8	30.50
288	Prairie chicken	4⅜	1⅛	8	30.00
298	Live pigeons, &c.	4½	1¼	8	31.00
267	Ruffed grouse	4¼	1⅛	7	29.50
287	Ruffed grouse and teal	4½	1⅛	7	30.00
266	Prarie chicken and ruffed grouse	4¼	1⅛	6	29.50
206	Bluebill and pintail	4½	1¼	6	31.00
265	Mallard	4¼	1⅛	5	29.50
285	Mallard	4½	1⅛	5	30.00
264	Mallard	4¼	1⅛	4	29.50
284	Mallard and redhead	4½	1⅛	4	30.00
294	Readhead	4½	1¼	4	31.00
293	Canvas back	4½	1¼	3	31.00
283	Canvas back	4½	1⅛	3	30.00
322	Turkey	5	1⅛	2	31.00
352	Goose and brant	5	1¼	B.B.	32.00
209	Extra light loads	3½	1⅛	9	28.00
208	Extra light loads	3½	1⅛	8	28.00
226	Extra light loads	3⅝	1⅛	6	28.50
224	Extra light loads	3¾	1⅛	4	28.50

16 Gauge.

Load No.	Adapted to shooting	Weight of Powder. Drams	Weight of Shot. Ounces.	Size of Shot.	Price per 1000.
530	Woodcock	2½	⅞	10	$24.50
539	Snipe and woodcock	2½	⅞	9	24.50
589	Snipe	2¾	1	9	26.00
538	Quail	2½	⅞	8	24.50
588	Prairie chicken	2¾	1	8	26.00
587	Ruffed grouse	2¾	1	7	26.00
616	Ruffed grouse and teal	3	1	6	26.50

20 Gauge, same prices as for 16 Gauge.

Special Loads.

New Club, 12 Gauge, Extra Quality Black Powder.

Load No.	Weight of Powder. Drams.	Weight of Shot. Ounces.	Size of Shot.	Price per 1,000.
A	3	1⅛	8	$26.00
B	3	1¼	8	27.00
C	3¼	1¼	8	27 50

These Special Loads will be supplied with 6 and 7 Shot when desired, but no other variation.

U. M. C. Loaded Shells, Nitro Powder.

Smokeless Shells.—Schultze, S. S., E. C. or Am. Wood.

			Price per 1000.
	12 Gauge.		
Load No. 1—	2¼ drms. (measure)	1⅛ oz.	$47.00
" 2—	2⅜ " "	1⅛ "	47 50
" 3—	2¾ " "	1¼ "	48.50
" 4—	3 " "	1⅛ "	48 00
" 5—	3 " "	1¼ "	49.00
" 6—	3¼ " "	1¼ "	49.50
	10 Gauge.		
" 7—	3¼ drms. (measure)	1⅛ oz.	56.00
" 8—	3¼ " "	1¼ "	57.00
" 9—	3½ " "	1¼ "	57.50
" 0—	3⅝ " "	1¼ "	58.00

It is stated that experience shows that the best results with Nitro Powders in Smokeless Shells are obtained with the above loads; therefore these Shells will not be loaded in any other manner. Above loads are equally well adapted to Trap Shells (metal reinforced). Heavier charges will be loaded to order in Trap Shells only.

	Per 1000.
Extra for Trap Shells, more than Smokeless	$8.00
Extra for each ¼ drm. (measure) Nitro Powder	.50

The following comparative table of Nitro Powders is given:

Drs.	Schultze. Grs.	"S. S." Grs.	"E. C." Grs.
2¼ (measure) Black Powder equal	35	34	36
2⅜ (measure) Black Powder equal	38	36	40
3 (measure) Black Powder equal	42	38	44
3¼ (measure) Black Powder equal	45	40	47
3⅓ (measure) Black Powder equal	48	43	50
3⅜ (measure) Black Powder equal	51	46	53

1 pound equals 256 drams equals 7000 grains.

The following basis for list prices is furnished, by which the list for any load may be computed:

	Per 1000.
12 gauge, 3 drams, 1 ounce Shot, Black Powder	$25.00
10 gauge, 3¾ drams, 1 ounce Shot, Black Powder	27.00
16 gauge, 2¾ drams, ⅞ ounce Shot, Black Powder	25.00
20 gauge, 2¾ drams, ⅞ ounce Shot, Black Powder	25.00
For each ¼ dram of Powder, add or deduct	.50
For each ⅛ ounce of Shot, add or deduct	1.00
Chilled or Buck Shot	1.00
Pink-Edge Wads, 12, 16 and 20 gauge	1.10
" " 10 gauge	1.60
Ducking Powder, more than regular Black	8.00
For Smokeless Shells, more than New Club, 12 gauge	7.00
For Smokeless Shells, more than New Club, 10 gauge	8 50
For Trap Shells, more than New Club, 12 gauge	15.00
For Trap Shells, more than New Club, 10 gauge	16.50

It is recommended that excessive charges of Nitro Powders be not used. The best results, it is stated, will be obtained with:

2¾ to 3 drams (measure) for 12 gauge.
3¼ " 3¾ " " " 10 "

Shot.—Under date June 23 the Associated Shot Manufacturers announce another advance. The prices for small lots are now as follows, terms net cash, 30 days, or 2 per cent. discount for cash in 10 days:

Drop Shot, sizes smaller than B, per 25-pound bag	$1.45
Drop Shot, sizes smaller than B, per 5-pound bag	.35
Drop Shot, B and larger sizes, per 25-pound bag	1.70
Drop Shot, B and larger sizes, per 5-pound bag	.40
Buck and Chilled Shot, per 25-pound bag	1.70
" " " " 5 " "	.40
Dust Shot, per 25-pound bag	2.00
" " " 5 " "	.45

In lots of 2000 pounds and upward taken at one time, a discount of 20 cents per 100 pounds will be allowed. Freight is equalized with any Shot manufacturing point.

Strap and T Hinges.—Some irregularity continues, as for some time past, to characterize the Strap and T Hinge market, and it is understood that some of the manufacturers are accepting orders at lower figures than are permitted by their agreement. The matter will undoubtedly receive attention at their meeting tomorrow.

Cordage.—No change has for some time been made in the announced prices of Cordage, and the market on the whole is fairly regular. Manilla and Sisal Rope can, however, be purchased at cut prices from some of the representatives of the National Cordage Company, as well as from outside parties. Thus Manilla Rope, which is sold regularly at 11¼ cents base, can be purchased at 10¾ cents base, while Sisal Rope can be obtained in round lots at 1 cent less than regular price.

Glass.—There is little activity in the Glass market, as the demand is light. Prices remain unchanged, and are fairly well maintained, as orders are not large or numerous enough to encourage the cutting of prices to secure additional business. Factories have been going out of blast for the past week, the total capacity reported as having shut down to June 25 being 142 pots. The rest of the factories will probably have closed for the summer by July 1. Reports indicate that there is a prospect of a shortage of American Glass for the summer months, as stocks are low at the factories. French Glass is in fair demand, and prices are reported as being firm. Quoted prices on Glass are as follows: American Window Glass, 1000-box lots or more, 80, 10 and 5 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount; French Window Glass, 80 and 5 per cent. discount; American Plate is held at a discount of 50, 10 and 5 per cent., and imported Plate at a discount of 60 per cent.

Anti-Rust.

THE INQUIRY of a correspondent in our issue of June 23 for a preparation to prevent polished steel from rusting has called out a number of replies. Wilcox, Crittenden & Co., Middletown, Conn., manufacturers of Marine Hardware and Ship Chandlery, advise us that for several years they have been using an article called "Non-corrodent," furnished by Chas. E. Wheelock, Milbury, Mass., which they state is the best thing they have found to prevent rust on polished iron or steel goods.

A Western manufacturer has found a transparent varnish effective in preventing rust on bright goods. The directions for preparing it are given as follows:

In a 5-quart pail is suspended a tin vessel with a brass strainer cloth bottom, the inner vessel being smaller at the bottom than at the top. The strainer bottom

should not quite touch the bottom of the pail. In the inner vessel put 15 ounces of rosin, on which pour 1 gallon of 63° benzine, and cover over to prevent evaporation. This should stand over night, or until the rosin is dissolved. One-fourth ounce of sugar of lead and ¼ ounce of verized alum are put in enough water to dissolve them, and are stirred into the benzine after the rosin is dissolved. Time is then allowed for all to settle, and all but the settlings are poured off, then the varnish is ready for use. The addition of pulverized plumbago makes, it is stated, a splendid stove polish.

Another correspondent advises the use of lime as an absorbent of moisture to prevent rust. He suggests that a small lump of lime be put in an uncovered box, and placed in the case with the polished steel goods. When the lime becomes air slacked, which, he states will take at least six months, it should be replaced by new lime. If the goods are handled they should be wiped off before being replaced in the case. We should be pleased to have further information from our readers on this subject.

Louisville.

(From a Special Correspondent.)

THE HARDWARE trade of Louisville, Ky., while of a very satisfactory volume for the time of year, is not doing a rushing business. Nearly all houses are in the midst of stock taking. If it were not for such extreme close profits ruling, a good balance would show on most books, as a large amount of goods have been handled during the last six months.

The heavy sales of Pig Iron during the past week would, under ordinary circumstances, indicate a general improvement in prices, but the fact that they were made by the furnaces coming down to buyers' views, shows only that low prices will rule for another season. No dealer or consumer will ever complain of low prices if lower ones are not threatened as a consequence.

A very good seasonable demand has been exhibited for Bar and Sheet Iron, Cut and Wire Nails. Shelf Hardware is going out well, and Heavy Hardware is always on the move from this city.

House-Furnishing Goods, especially those tending to alleviate man's discomfort in hot weather, are in great demand. There never was so much Fly-Screen Wire put up as this year. Genuine hot summer weather is accountable for this growing business, coupled with the fact that reduced prices have placed all such luxuries in the reach of all.

The near approach of July 1 has caused the withdrawal of a great many prices on staple lines from the mills. Already dealers are ready to pay 5 cents per 100 pounds advance on some articles—Wire Nails for one—but the mills hold strong at 10 cents advance over extreme prices. There has been nothing to cause prices to advance, but curtailment may cause a scarcity and make it difficult to get orders filled on time.

Harvesting machinery is still crowding the shippers. This has been a good year for them, and a fine crop is now being gathered of wheat, although it is too early to say how it will turn out. Another great staple crop of Kentucky and Tennessee, tobacco, has had a fine start and promises well.

General business prospects are good, but nothing exciting is expected. All are well satisfied with the end of the half year, especially the Hardwaremen.

Combined Steel Goods and Glass Rack.

A CHEAP AND CONVENIENT RACK for Steel goods and Glass is shown in the accompanying illustration, Fig. 726. The lower part, which is used for Glass, is 3 feet 10 inches high, and the entire hight of the Steel goods rack from the top of the table is 4½ feet. The two cross bars form convenient resting-places for short and long-handled goods. The pegs separating the handles are of ⅜ round iron, and are designed to prevent the tools from falling sideways. The table is 3 x 12 feet in size, the top being made of 2-inch material. Under the table the

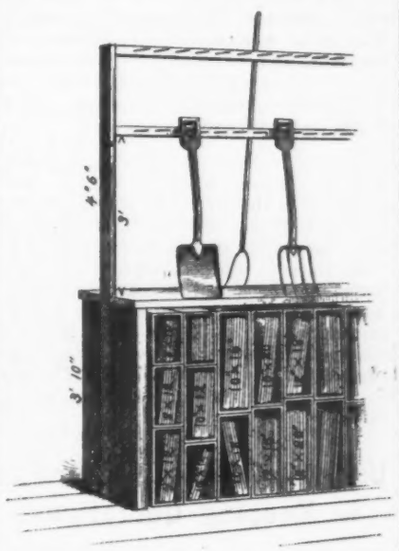


Fig. 726.—Combined Steel Goods and Glass Rack.

arrangement of the smaller sizes of Glass is shown. The combined rack can be modified in size to suit individual requirements.

Sporting and Athletic Goods.

THE INCREASED ATTENTION given to Sporting Goods is forcibly illustrated by the handsome catalogues which are published by the wholesale houses in this line. These catalogues are in many cases not mere price-lists, with the illustrations of the articles offered for sale, but are truly works of art, in which enticing pictures of camp, marsh, rapids, mountain and prairie send a thrill of enjoyment through the sportsman.

There is a marked increase in the number of Hardwaremen who are making more of a specialty of Sporting and Athletic Goods each year, and are finding this a profitable department of their business. There is no reason why this line of trade should not be monopolized by the Hardwaremen, instead of letting it drift into the book and news stores and the toy stores.

It will be noticed that *The Iron Age* has devoted considerable attention to the late productions of Bicycles, Fishing Tackle, Guns, &c., and has awakened considerable interest in the subject of the display of Sporting Goods. We have in preparation additional matter bearing upon this subject, and shall value any suggestions from the trade in regard to it.

Trade Items.

IN OUR LAST ISSUE in the description given of the Broom Holder recently put on the market by Slaymaker, Barry & Co., Lancaster, Pa., we referred to Surpless, Dunn & Alder as their agents. This was, however, incorrect, John H. Graham & Co., 113 Chambers street, New York, being the general agents for the sale of all of their goods.

R. H. DANA COMPANY have removed from 25 Beaver street, New York, to more commodious offices in the Kemble Building, 15 to 25 Whitehall street. The company have increased their capital stock to $75.000, and we are advised that they are intending to send travelers abroad before long. Their advertisement will be observed on another page.

JOHN T. HENRY & SON, Hamden, Conn., have organized into a joint stock company under the statute laws of the State of Connecticut. The style of the firm is now the J. T. Henry Mfg. Company, of which John T. Henry is president. Owing to their increasing business the company have commenced the erection of a new brick building which, when completed, will, we are advised, more than double the size and capacity of their plant. The company will continue the manufacture of a full line of Pruning Implements and Garden Tools. They have also added a special department for the production of Wire and Sheet Metal Novelties, and are prepared to furnish estimates on tools and sample lots.

JARVIS CALL has purchased and is carrying on the Hardware business of Albert A Duer at 522 South Second street, Philadelphia.

COLUMBIA GREY IRON COMPANY, Columbia, Pa., manufacturers of Toys, Novelties, Builders' Hardware and Small Castings, have appointed O. N. Stein as their Eastern agent, with office at 64 Federal street, Boston. The Columbia Grey Iron Company were incorporated August 19, 1891, with a capital stock of $50,000. They announce that they have built an entirely new plant, fully equipped with improved modern machinery and appliances. H. S. Stauffer is general manager and Wm. M. Spera superintendent of the company.

J. C. MCCARTY & Co., 97 Chambers street, New York, issue a card in which they call attention to the fact that they are agents for the Peters Cartridge Company, Cincinnati, Ohio, a complete assortment of whose Loaded Shells is carried in stock. They remind the trade that the capacity of the company's factory has recently been doubled, so that they are now in a position to execute orders, large or small, with reasonable dispatch.

S. M. SMITH has purchased the interest of his partner. J. G. Carnahan, in the Hardware business at Washington, Ind. He will continue the business at the old stand, 124 Main street.

ST. JOSEPH PUMP COMPANY, St. Joseph, Mo., advise us that their Perfection Water Elevator and Purifying Pump is meeting with increasing favor at the hands of the trade, the company being sometimes compelled to decline orders for their cheaper grade of Pumps that they may take care of those for the Perfection. This popularity is attributed to the company's endeavors to improve and strengthen the Pump. They have just completed a machine at a cost of over $1000 which is designed to make the wire links comprising the chain of this Pump. This machine, we are advised, turns

off a complete link every two seconds, or 30 per minute and 1800 per hour, so that running ten hours per day 18,000 links are thus turned off, equal to 12,000 feet of chain or buckets. Packing 40 feet of chain with each Pump, which is sufficient for a 17½ foot well or cistern, they have chain enough to equip 300 Pumps per day of ten hours. The proportions to which their business has thus grown will be better understood when their capacity five years ago, at which time the manufacture of the pump was commenced, was but 10 to 15 complete Pumps per day. It is stated that the trade on this Pump comes from all parts of the United States, there being also several good foreign customers on the company's books.

On June 15 the Chicago office of the Kilmer Mfg. Company, Newburg, N. Y., was removed to rooms 609 and 610 of the Bort Building, 21 Quincy street, immediately east of the post office and about one-half block west of State street. For some time past the company have felt the necessity of having an office more centrally located in the business portion of the city, and the location above is referred to as a very convenient one, being easily reached from the various railroads. The storehouse of the company will still be located at 543 and 545 State street, and the removal of the office will provide more room and greater facilities for carrying a complete stock of Bale Ties, Barb Wire and Coil Wire.

The National Wringer & Mfg. Company, Canton, Ohio, advise us that they have purchased all patents, machinery, patterns, &c., formerly the property of the Erie Wringer Company of Erie, Pa., and the Erie Wringer Mfg. Company of Pittsburgh, Pa. Owing to the increasing demand for these goods the company are now putting up an extensive plant, into which they expect to move about August 15. For the convenience of the trade the campany have established branch offices at 53 River street, Chicago, and 202 Market and 3 Pine streets, San Francisco, where large stocks of these goods will be carried for immediate delivery. The company are manufacturing the Erie, King, Daisy, "77," Prime, Diamond, Columbia and Pittsburgh brands of Wringers, and refer to the strength, cleanliness, durability, &c., of the iron frame Wringer. John H. Werner is president of the company, Joseph Schott secretary and treasurer and James M. McNeill general manager.

The Peters Cartridge Company, Cincinnati Ohio, advertise their Shotgun Cartridges by cards about 2 x 5 inches in size, following the outlines of a loaded Cartridge, cut away so as to show the manner in which they are loaded. The Cartridge is printed in colors, and makes an attractive medium with which to interest consumers. On the other side are printed the names of the merchants handling the goods and testimonials.

E. F. Hays, dealer in Oil-Well Supplies, Hardware and House-Furnishing Goods, &c., Chicora, Pa., was burned out on the 20th inst. Mr. Hays advises us that he will rebuild immediately.

Some time since we announced that a contract had been executed by which the products and business of the Branford Lock Works, Branford, Conn., will after July 1 be controlled and handled by the Yale & Towne Mfg. Company, Stamford, Conn. Formal announcement of the carrying into effect of this arrangement is made in our advertising columns of this week, from which it will be observed that hereafter full lines of Branford goods will be carried in stock at the branch houses of the Yale & Towne Mfg. Company in New York, Chicago, Philadelphia and Boston. Orders of the larger kinds will be filled directly from the Branford works, especial care being given to correct and prompt deliveries. Smaller assorted orders will be filled from the branch houses.

The Wire Fabric Company, Homer, N. Y., manufacturers of Wire Cloth and other Wire and Hardware specialties, call particular attention to their Elastic Enameled Evaporator Cloth, which, it is claimed, contains no zinc or other poisonous matter, is acid proof and is not affected by high temperatures. This is made in 2, 4, 5 and 8 mesh, and is adapted to all the different uses to which the galvanized goods are usually put.

The Upson & Hart Company, Unionville, Conn., have added to their business the manufacture of Solid Nickel Silver Goods under a new process which, we are advised, was invented by H. C. Hart, secretary and superintendent of the company. The great economy of this process is referred to, and we are advised that the process will be leased to other manufacturers. The advertisement of the company will be found on another page.

American Stamping Company, successors to Joseph Scheider & Co., with factories at Brooklyn, E. D., N. Y., and Portland, Conn., refer in their advertisement on another page to the fact that they have recently opened sample and sales rooms at 104 and 106 John street, New York. They also mention that they are manufacturers of Plain and Retinned Stamped Tinware, Tinners' Trimmings, plain and heavy; Polished Pieced Tinware, Japanned and Galvanized Ware, Cuspidors, &c.

Use of a Cabinet Letter File in Keeping Quotations.

A SUCCESSFUL SYSTEM, one that works smoothly and accurately, is usually built up with the business. Day by day, as experience demonstrates, the necessary parts are added, simplified or perhaps modified. To take a particular system outright and introduce it into an established business is like buying a ready-made coat. It may fit nicely and wear splendidly. It usually does, but then again it may be a bad botch and cause disappointment. What will work evenly and satisfactorily under one man's guiding hand will be a source of annoyance and friction under another. It is with this view that in taking up this fraction of a system of keeping prices no particular way is especially recommended over another, the sole object being to strengthen that which is already in use.

You are an economizer of time and your system is quite simple, you merely mark the inside price of discount in the catalogue or price-list. It is a good plan, but are you sufficiently careful to have the particular one you want always on hand? If not, would it not be practicable to procure a cabinet with, say, 12 drawers, each drawer marked on the outside "A B," "C D," "E F," &c., and each having an index, in which to put circulars, letters and memoranda; the catalogues to be merely put in the drawer on top of index according to the alphabetical letters to which they belong. You, of course, use a cost price, which is different from your selling mark, and also unlike what any of your competitors or fellow buyers have. If not, you should. It will also be advisable to make your memoranda on the catalogues, &c., what you bought, when you bought, how the goods sold, what you sold the goods at, what your competitors sold them at, &c.

The Cabinet Letter File has greater possibilities than any other labor-saving office appliance. Its adaptability is simply wonderful, and we will therefore stay by it a little longer. This file may have any desired number of drawers from one upward. Our buyer prides himself on his judgment, his knowledge of goods, his ability to foresee the market. He rather resents the idea of running a book of any kind. He claims to be a buyer, not an office man. Then, indeed, is this little scheme dear to his heart. On his desk lies a memorandum block; it is, say, six inches square in size, and while of good weight is not a paper of perfect finish. In steps Mr. Smith, representing Jones, Brown & Co., manufacturers of Tea Kettles, and relates his little tale. Our buyer reaches for the memorandum block, pulls out his pencil and writes:

Tea Kettles.

No. 1, Copper.....5 in. Nth doz.
" 1, " .....6 " Nte "
" 1, " .....7 " Neh "
" 2, Tin Cop. Bottom.....5 " Eth "
" 2, " " .....6 " Ete "
" 2, " " .....7 " Eeh "

In gross lots five per cent. trade, 2-10 net 60 days. Delivered in Chicago. Jones, Brown & Co, Cincinnati, June 25, 1891. This memorandum he puts on a spindle, in a clip or in a drawer until the stock or office boy has time to index it. The index in the cabinet is as follows:

Taa to Tax.
Tay to Taz.
Te.
Tha to Thi.

The memorandum in due course is put in the file under the subject, which is "Tea Kettles." It is consequently placed in the apartment "T," where it is always possible to get it without a moment's delay. This method is simple, reliable and quick.

The plan just explained is modern, and for a change we will go backward. As a letter is received giving quotations it is entered in a book under the heading of "Firms," as follows: No. 1. Brown, Smith & Co., Tea Kettles. It is folded over from each side so as to be but the width of a postal card, and on the upper end of the back the number in the book is written. It is then again entered in the same book, but in another part, under the heading of "Subject," the same number being used. Where the quotations are given verbally a memorandum is made as explained in the previous described plan, and then handled in the same manner as just mentioned above. These letters are then tied with a string, or held with a rubber band, and are, of course, kept in rotation according to number. The indexing in the book by subjects should be alphabetically. If this is done then it is possible to dispense with the headings "Firms." C. R.

Lamps.

CRAIGHEAD & KINTZ COMPANY, 33 Barclay street, New York, advise us that they have heretofore furnished their Daylight Lamps exclusively with the ratchet wick-raising device, and still consider this form of wick raiser in every way superior to any other device, as the hight of the flame can be more readily and accurately regulated by means of this appliance. However, a large share of the public have been educated to ask for the pull-bar wick-raising device, and they have perfected a superior system of this style of wick raiser, and can now offer customers a choice. They also supply their Lamps with an indicator showing when the Lamp is full of oil. The indicator is of glass, which is referred to as having advantages over a cork float.

It Is Reported—

That Geary & McCarthy have opened a new Hardware store at Havana, Ill.

That Grant & Hobson, Hardware merchants, Aurora, Ill., are out of business.

That Doolittle Bros. is the style of a new firm dealing in Hardware at Estherville, Ohio.

That E. S. Scoullar & Co., dealers in Hardware, Vancouver, B. C., have been succeeded by the Cunningham Hardware Company.

That Disosway & Churchill is the title of a firm which has recently commenced the Hardware business at New Berne, N. C. They will make a specialty of Machinists' and Mill Supplies The firm is composed of J. J. Disosway and B. L. Churchill. Messrs. Disosway and Churchill are young men and were formerly in the employ of J. C. Whitty & Co., Hardware merchants, of New Berne.

That in a conflagration at Chicora, Pa., on the 14th inst., the Hardware and furniture store of E. F. Hayes was destroyed. Loss, $15,000.

That C. A. Lee has commenced work on his new Hardware store at Sterling, Ohio.

That George H. Spang of the Hardware firm of Bressler & Spang, Lebanon, Pa., has retired from business, His place has been taken by S. S. Schnehl, who formerly conducted a Hardware store in the same city. The firm are now known as Bressler & Schnehl, and have a flourishing business at 760-762 Cumberland street, Lebanon, where they occupy a spacious store having excellent arrangements for storage and display of a full line of Hardware, Stoves, Trimming and Roofing Goods, &c.

That N. O. Ward and C. H. Smith have formed a partnership for the purpose of carrying on the business of retailing General Hardware and Farming Implements at Stanwood, Mich.

That Mr. Ferland has bought out the Hardware stock of the Port Gardner Hardware Company, Everett, Wash., and has opened a store in the Zindorff Building.

That J. C. Redgrave's Hardware store at Lyons, N. Y., was robbed on the 20th inst. About $60 worth of Revolvers, Ammunition and Cutlery was taken.

That John Nicholson, manager of the Bolivar branch of the Jarecki Oil Well Supply Company, has purchased the Hardware stock of George L. Tucker at Belmont, N. Y., and will take possession July 1.

That Howard & Smith, Hardware dealers, Wyalusing, Pa., are building a large addition to their store.

That J. L. & F. L. Brender are erecting a Hardware store at Eudora, Kan.

That G. L. Davis & Son, Falconer, N. Y., have rented their building to a company who will put in a large stock of Hardware.

That G. L. Peirce has sold his Hardware store at Miller, Neb., to Mr. Morey.

That George Hewitt of Michigan has opened a Hardware store at Knowlesville, N. Y.

That William Hall, dealer in Hardware and Furniture, Moville, Iowa, was burned out recently. Loss, $8000; insurance, $3000.

That A. L. Goodrich of Oneonta, N. Y., has purchased a Hardware store in Worcester.

That R. J. Humphrey & Co. have purchased the stock of Hardware, Stoves, Cutlery, &c., of W. Z. Evans, Delaware, Ohio.

That the Albany Hardware Company, Albany, N. Y., have filed a certificate of full payment of capital stock with the Secretary of State. The capital is $25,000, and the directors are Charles H. Turner, Peter Kinnear, Seth Wheeler, J. H. Dunscomb and J. Townsend Lansing.

That J. W. Hamrich, Danville, Ind., has disposed of his Hardware store to W. F. Sandy who will continue the business as formerly.

That Charles Fish, Agricultural Implement dealer at Sauk Center, Minn., has been succeeded by a new firm, the style of which is Townsend & Fish.

That J. B. Heck has just opened a Hardware store at Petersburg, Neb.

That Wood & Atwood's Hardware establishment at Flint, Mich., was entered by burglars on the 10th inst., and some cutlery stolen.

That Frank Miller has, with Floyd Rice, opened a Hardware store at Elkland, Pa.

That the Hardware stores of Evans & Kelly and Smith Bros., Savannah, N. Y., were burglarized on the 9th inst.

That Hawkins & Son, Hardware merchants at Chico, Cal., have dissolved partnership. A new firm has been organized under the style of Hawkins & Eliot, who will continue the business.

That George Armstrong will continue the business formerly conducted by George Armstrong & Co., San Francisco, Cal., under the same style of firm name.

That Persons & Myers have commenced the Hardware business at Harvey, Ill.

That Sanquist Bros. are a new Implement firm at Orion, Ill.

Price-Lists, Circulars, &c.

OSWEGO INDURATED FIBER COMPANY, Oswego N. Y.: Illustrated catalogue C, Indurated Fiber Bath Tubs, Foot Tubs, Seat Tubs, Lavatories, Laundry Trays, Pantry Sinks, Child's Baths, Cisterns, Seats, Pipe Boards, Tiling and Wainscoting. The manufacturers claim that their Indurated Fiber Ware combines beauty, cleanliness, durability, lightness, easy of care, economy in the use of hot water, compliance with the latest sanitary regulations and cheapness.

PATCH & SWIFT, Streator, Ill.: Architectural Iron Work, Store Fronts, Columns, Pilasters, Blacksmith Tools, Lawn Vases, &c. Illustrations of various designs in the line are given in their catalogue, also a catalogue of Stove Repairs covering 85 pages.

THE VANDERGRIFT MFG. COMPANY, Jamestown, N. Y.: New Improved Western Washer, Improved Pan-American Washer, Self-Weighing Shot Case and American Hand Seed Planters. We are advised that a patent was recently granted on both the Washers on the manner of placing the gearing or operating parts inside the machine for shipping. This mode of packing is referred to as obviating any danger of the castings getting broken in transit.

E. BEMENT & SONS, Lansing, Mich.: Farm and Garden Implements, Stoves, &c. These various lines of goods are shown in great variety, with descriptions, price-lists, &c. They also present a view of their plant.

NOVELTY WIRE & IRON WORKS, H. R. Vaneps, Peoria, Ill.: Wrought-Iron Fence, Window Flower Garden, Flower Baskets, Flower Stands, Trellis, Barrel and Basket Covers, Counter, Desk and Window Guards, &c.

MINNESOTA THRESHER MFG. COMPANY, Stillwater, Minn.: Threshing Machinery. Attention is directed to their Separator, Engine, Horse Power, Self Feeder, Automatic Stacker, Automatic Wagon Loader, Automatic Bagger and Portable Sawmill.

JACOB J. VOLLRATH MFG. COMPANY, Sheboygan, Wis.: Enameled Iron Ware. A line of Hollow Ware is shown in colors, in which the finish varies, some being white inside and colored outside, while others are gray enamel inside and outside. The manufacturers refer to the "Vollrath Ware" as fine, large and complete.

DEERE & CO., Moline, Ill.: Plows, Cultivators, Harrows, &c. A catalogue of 150 pages is devoted to this line of goods, which is fully illustrated and described.

BERGER BROS., Philadelphia, Pa.: Tinners' Hardware, Fine Malleable and Gray Iron Castings and Roofers' Supplies. They call attention to their Handy Barrel Truck, Eave Trough Hangers, Malleable Pipe Straps, Pail Ears aand Saucepan Handles. A discount sheet accompanies their catalogue.

THE NORTHWESTERN HORSE NAIL MFG. COMPANY, Chicago, Ill.: Horse Nails. These are made with regular, Goodenough and city heads; also Plate Nails. They have recently introduced two new styles of Nails known as Kent Special Plate Nails, for Covington and Kent Racing Plates, and Countersink Heads for stamped shoes.

GOWANDA AGRICULTURAL WORKS, Gowanda, N. Y.: Gowanda Steel Plows. These are referred to as being light of draft, easy to handle, turning a good furrow and as hanging well. They are furnished with Cutter Points for stubble or stony ground, and have solid steel collar or jointer, as preferred.

H. H. PERKINS MFG. COMPANY, Kewanee, Ill.: Perkins' Boss Huskers. These are shown in Styles A, B, E, O, P, Q and R. The manufacturers state that in making Huskers only the best materiels are used. Styles A, B and E are forged from polished steel and nickel plated. The Leather used is selected yellow calf; the boxes in which the Huskers are packed are referred to as first class and in keeping with the goods.

BOSTON WOVEN HOSE AND RUBBER COMPANY, Boston, Chicago, and San Francisco: Cross-Stitch-Sewed Belt without seam. This is a Rubber Belt, on one side of which the threads run longitudinally, while on the other side they are tied together by threads running transversely. Thus it is claimed the Belt is tied together thoroughly in all directions.

SYRACUSE TWIST DRILL COMPANY, Syracuse, N. Y.: Twist Drill Bits for both metal and wood, Clark's Double-Cut Countersinks and Sweet's Measuring Machines. It is stated that while this machine is superior for making and testing standards, its greatest benefit is found by putting it to daily and continuous use. The machine has been recently improved in the form of the screw, which is now thoroughly protected from dust, and by a new form of friction nut. The machines are in use by a large number of manufacturers in different parts of the country.

THE WOLCOTT HARDWARE COMPANY, Hartford, Conn.: Wolcott's Sash Locks. Illustrations and price-lists are given of various styles and finishes of burglar-proof Sash Locks, which are manufactured, it is stated, under patents of which the whole and undivided interests are owned and controlled by the manufacturers. Particular attention is directed to the Monarch Sash Lock, which, it is claimed, will not mutilate or break the sash, and will draw the meeting rails closely together and securely lock the same.

BUNDY MFG. COMPANY, Binghamton, N. Y.: The Bundy Automatic Time Recorder. The object of the Recorder is to record in a permanent printed form the hour and minute at which persons arrive and depart in the morning, at meal times, or at any time of the day or night. It is recommended for use in factories, shops, stores, offices and in fact in every establishment where men's time is required to be noted.

NASON MFG. COMPANY, New York: Trade sheet of discounts, under date June 25, 1892, to apply to their new catalogue as revised October, 1891. They are sending out an indexed diary, which is never out of date, advertising their "10 to 1" Boilers.

OUR HARDWARE FOR HOT WEATHER: Rector & Wilhelmy Co., Omaha, Neb. A price current of Refrigerators, Lemon Squeezers, Ice Picks, Ice Tools, Oil and Alcohol Stoves, Gasoline Stove Furniture, Screen Doors and Windows, Spring Hinges, Oilers, Apple Parers, Freezers, &c. The arrangement of the front cover emphasizes the summer's heat.

THE NORWALK METAL SPINNING AND STAMPING COMPANY, Norwalk, Ohio: Superior Sheet Metal Stove Furniture. Illustrations are given of Copper Tea Kettles in various styles and sizes, polished and nickel plated; Wash Boilers, Tea or Coffee Urns, Cuspidors, Umbrella Stands, covered Sauce Pans, Wash Basins and Copper Measures.

HENION & HUBBELL, Chicago, Ill.: Special catalogue and price-list of Well Machinery, Well Tools and Well Supplies, including Wrought-Iron Pipe Fittings, Artesian Well Casing, Tubular Well Pipe, Pipe Tools, &c. Illustrations and price-lists of these goods are given.

A. LESCHEN & SONS ROPE COMPANY, St. Louis, Mo: List A, Wire Rope and Fittings of every description. Special attention is called to their Hercules Wire Rope, the wires of which, it is stated, are drawn from a patent steel especially for this brand of Rope, which makes a tough and strong Rope. The manufacturers claim that it is uniform in density, texture, strength and elasticity.

STAR HEEL PLATE COMPANY, Sacks & Richmond, proprietors, Newark, N. J.: Star Heel and Sole Plates, Star Jacks, Iron Stands, Combination Last, Lap Irons, Foot Rests, Awl Hafts, Malleable Iron Hob Nails, Crucible Cast-Steel Book Calk and Punches, &c.

THE PAYSON MFG. COMPANY, Chicago and New York: Pendulum Parlor Door Hanger, Double Truss Hangers Payson's Palace Double-Acting Spring Butts, Transom Lifters, Sash Locks, Casters, &c. A catalogue illustrates these goods with price-lists.

UTICA STEAM GAUGE COMPANY, Utica, N. Y.: Ordinary Gauges, Locomotive Gauges, Test Gauges Test Apparatus, Revolution Counters, Clocks, Hydraulic Gauges, &c. Their catalogue is an attractive one, well arranged, much care having been given to the cuts and typographical work of the book.

SHIMERSVILLE HARDWARE WORKS, Wm. Shimer, Son & Co., proprietors, Freemansburg, Pa.: Hardware and House Furnishing specialties and Iron Founders. Illustrations are given of Sad Irons, Scales, Brackets, Hat and Coat Hooks, Hammers, Hatchets, Boot Jacks, Match Safes, Toy Banks, Toy Pistols, Toy Trains, &c.

THE M. SEWARD & SON COMPANY, New Haven, Conn.: Carriage Hardware. The catalogue is devoted to price-lists and illustrations of Clips, Gear Irons, Dash Feet, Foot Rails, Shifting Rails, Joint Ends, Fifth Wheels, &c. Attention is called to their new plan of numbering their Clips. The new numbers correspond to the length of the flat part of the Clips, so that parties ordering by the flat part will not be obliged to refer to the catalogue to ascertain the number required.

STEEL EDGE STAMPING AND RETINNING COMPANY, Boston, Mass.: Stamped and Japanned Ware, House-Furnishing Goods and Wooden Ware. Illustrations are given of Steel Edge Dust Pans, Cuspidors, Japanned Goods, Deep, Plain and Retinned Stamped Ware, Wooden Ware, &c. They call attention to their line of Japanned and Painted Wares and specialties, and refer to the quality, finish and artistic decoration of the goods.

COLUMBUS BUGGY COMPANY, Columbus, Ohio: Buggies, Phaetons, Surries, Carriages, &c. They refer to their line of vehicles as handsome and complete, and to their style, finish and quality.

PETERS DASH COMPANY, Columbus, Ohio: Dashes, Fenders, Washers, Roll up Straps, &c. Illustrations and prices of these goods are given in their catalogue. They state that the stitching on these goods is close, about ten stitches to the inch, and the finish perfect.

THE SILVER MFG. COMPANY, Salem, Ohio: Ohio Ensilage and Feed Cutters and Carriers; also a treatise on silage and ensilage, with a plan of a 100 ton Silo. They also manufacture a line of Carriage and Wagon Builders' and Blacksmiths' Tools and Machines and Butchers Tools.

C. W. SCUDDER, St. Johnsville, N.Y.: Fifth Wheels and Forgings. Illustrations are shown of the various styles of Fifth Wheels, as follows, Derby, Cincinnati, Ohio, Wilson, Brewster, Timken and Flat Circles; also of Finished Shaft Couplings, Double-Reach Clips, Canopy-Top Standards, Body Loops, &c.

THE IOWA FARMING TOOL COMPANY, Fort Madison, Iowa: The Columbia Socket Forks. A pamphlet is devoted to illustrations and descriptions of these goods. They are referred to as being of an extra quality, the sockets, shanks and tines all being made of steel.

CINCINNATI MFG. COMPANY, Cincinnati, Ohio: Brushes and Wire Goods Illustrations and prices are given of Brushes of all kinds, Bird Cages, Fire Guards and Fenders, Stove Fixtures, Wire Moss Baskets, Iron and Steel Wire Cloth, Fences, Bank and Counter Railing, &c. They remark that Brushes should not be kept in a warm or dry place, and if from any cause Brushes have shrunk, that they can generally be restored by putting them in a cellar or a moderately damp place.

HUMPHREYSVILLE MFG. COMPANY, Seymour, Conn.: Augers, Auger Bits, Gimlets, &c. Illustrations and price-lists of these goods are given in their catalogue, covering a full line. Views are also given of Sperry's Bit Box, arranged to hold a set of Bits.

JOHN C. JEWETT MFG. COMPANY, Buffalo, N. Y.: Refrigerators, Water Filters, Water Coolers. Bird Cages, Brass and Nickel-Plated Goods, Toilet Ware, &c. These goods are shown in a variety of styles, in a well-arranged catalogue, with price lists, descriptions, &c.

GOODELL COMPANY, Antrim, N. H.: Knives and Forks, Carvers, Steels, Butcher and Miscellaneous Knives, Shoe Knives, Apple Parers, Cherry Stoners, Case Openers, Seed Sowers, Hammock Chairs, Champion Carriage Wrench, &c.

EAGLE MFG. COMPANY, Davenport, Iowa: Agricultural Implements. Corn and Cotton Stalk Cutters, combined Lister and Drills, one-horse Corn Drill, Cultivators, Sulky Plows, Plows, &c.

I. E. PALMER, Middletown, Conn.: Canopy Fixtures and Canopies, Window Screen and Piano Cloth, Hammocks and Suspension Devices. Illustrations show a large line of these goods, particular attention being directed to Hammocks and Hitching Devices. The manufacturer claims that all goods represented in the catalogue will be found of the highest type of excellence.

NASHVILLE SPOKE & HANDLE COMPANY, Nashville, Tenn.: Hickory Handles, Wagon and Carriage Spokes. The line of Handles manufactured by this company include Axe, Adze, Mattock, Pick, Maul, Hammer and Hatchet They also manufacture ironed Plow Singletrees and Doubletrees, and Wagon Singletrees not ironed.

SUTTON BROS. & BELL, Indiana, Pa.: Agricultural Implements. Stump Puller, Land Rollers, Iron Vases, Cant and Mill Hooks, Blacksmiths' Upsetters, Swages, Tire Benders and Tuyeres.

PENNSYLVANIA WIRE WORKS, Edward Darby & Sons, proprietors, Philadelphia, Pa: Wrought and Cast Iron Railings, Window Guards, Wire Goods, Bird Cages and Wire Work of every description. The company state that with the aid of improved machinery they are enabled to offer the very best inducements to customers.

MAINE MFG. COMPANY, Fairfield, Maine: Refrigerators, Window Screen Frames, Folding Tables, &c. Illustrations and price-lists of these goods are given in their catalogue. The manufacturers claim that their Refrigerators are constructed upon modern and scientific principles.

PREMIER CYCLE COMPANY, New York, and Orange, N. J.: Kohinoor Roadster, Kohinoor Light Roadster, Catford Premier Semi-Racer, Ladies' Premier, Standard Premier, Premier Racer, Outing Premier, and Lucas' "Cyclealities."

ROMER & CO., Newark, N. J.: Electrical Goods, Builders' Hardware, Padlocks, Night Latches, &c. Various catalogues are devoted to these different lines of goods.

CALIFORNIA WIRE WORKS, San Francisco, Cal.: Wire Ropes and Cables, Wire, Wire Nails, Barbed Wire, Wire Cloth, Wire Netting, Wire Staples, and the Hallidie Ropeway for the Transportation of Ore and other materials by means of an endless traveling Wire Rope Price-lists and illustrations are given in their catalogues, with valuable tabulated matter.

Exports.

PER BARK STAR OF THE EAST, JUNE 10, 1892, FOR DUNEDIN AND LYTTLETON.

By R. W. Cameron & Co—10 cases Fruit Jars, 7 packages Lawn Mowers, 1 crate and 20 cases Handles, 5 boxes Axes, 6 cases Handles, 1 case Hardware, 1 box Emery Wheels, 1 box Whetstones, 1 keg Tacks, 1 case Tire Shrinkers, 1 box Nails, 2 cases Handles, 3 cases Hardware, 1 case Wringers, 1 case Egg Beaters, 1 case Pumps, 1 case Wrenches, 1 case Traps, 1 box Whetstones, 12 cases Cartridges, 1 case Braces, 2 cases Handles, 5 boxes Agricultural Implements, 8 Stoves, 3 cases Hardware.

PER BARK MENTONE, JUNE 11, 1892, FOR ADELAIDE, AUSTRALIA.

By Henry W. Peabody & Co.—1 case Lead Pencils, 12 packages Hardware, 11 cases Nails, 2 crates Handles, 13 packages Hardware, 1 cask Pumps, 11 packages Lawn Mowers, 3 cases Wringers, 4 packages Hardware, 13 packages Hardware, 7 packages Pumps, 4 cases Hardware, 2 cases Handles, 10 cases Handles, 25 packages Hardware, 8 cases Agate Ware, 5 cases Axles, 3 packages Hardware, 1 case Mouse Traps.

By Arkell & Douglas.—2 cases Lanterns, 6 cases Wringers, 5 cases Wrenches, 26 crates Handles, 3 cases Rakes.

By R. W. Forbes & Son.—2 cases Cow Bells, 9 packages Carriage Hardware, 4 cases Wringers, 2 cases Carriage Bolts.

By Strong & Trowbridge.—5 cases Axes, 1 case Saws.

By Hussey, Binns & Co.—13 cases Shovels.

By McLean Bros. & Rigg.—1 case Nutmeg Graters, 7 cases Files, 40 cases Axes, 1 case Hoes, 2 cases Butts, 41 bundles Carriage Hardware, 1 case Drills, 1 case Sluice Forks, 2 casks Lamps, 11 cases Tinned Nails, 1 case Axles, 11 cases Cartridges, 22 cases Windmills.
By R. W. Cameron & Co.—1 case Hardware.
By F. B. Wheeler Company.—5 cases Hardware.
By Atlas Tack Corporation.—10 cases Nails.
By Withington & Cooley Mfg. Company.—5 cases Hoes.
By Meriden Britannia Company.—2 cases Silver-Plated Ware.
By F. H. Lovell & Co.—41 cases Lamp Goods.
By Alfred Field & Co.—3 cases Tinware, 3 cases Plated Ware, 12 cases Handles.
By Arkell & Douglas.—25 Binders.
By W. H. Crossman & Bro.—1 case Rakes, 11 cases Agricultural Implements, 1 case Oil Stoves, 12 cases Handles, 3 cases Iron Bolts.
By R. H. Dana Company.—1 case Handles, 2 cases Bolts, 4 cases Wringers, 1 case Hardware, 3 cases Fruit Jars, 1 cask Pumps, 3 cases Axes, 1 case Rat Traps, 4 cases Agate Ware, 1 case Springs.
By Mailler & Quereau.—2 cases Axes, 109 packages Agricultural Implements.

PER BARK FORTUNA, JUNE 13, 1892, FOR PORT NATAL, SOUTH AFRICA.

By Johnston Harvester Company.—85 packages Harvesting Machinery.
By Corner Bros. & Co.—4 cases Agricultural Implements, 5 cases Tools, 2 cases Ironware.
By H. W. Peabody & Co.—2 cases Rat Traps, 4 packages Hardware, 2 cases Axles, 7 packages Lawn Mowers, 1 case Shovels, 8 cases Nails.
By W. H. Crossman & Bro.—500 reels Barb Wire, 18 cases Handles, 36 cases Hardware, 40 kegs Nails, 29 cases Agricultural Implements.
By the Coombs, Crosby & Eddy Company.—2 cases Agricultural Implements, 1 Harvester, 13 cases Agricultural Implements, 2 cases Wringers, 30 cases Plow Shares, 1 rack Churns, 6 cases Axes, 7 crates Mouse Traps, 9 cases Hardware, 1 case Hay Forks, 1 case Hardware, 13 cases Lamps, 5 packages Handles, 1 case Axes, 18 cases Plow parts.

PER BARK CHAS. G. RICE, JUNE 14, 1892, FOR PORT ELIZABETH, SOUTH AFRICA.

By Arkell & Douglas.—139 packages Agricultural Implements, 144 cases Axes and Hatchets, 26 cases Handles, 76 kegs Nails, 36 Scales, 7 cases Shovels, 2 cases Rifles, 9 packages Pumps, 21 packages Hardware, 6 cases Cartridges, 9 cases Fruit Jars, 5 packages Rakes, 6 crates Stoves.

FOR EAST LONDON.

By E. T. Hopkins.—1 case Lamps.
By the F. B. Wheeler Company.—2 cases Saddlery Hardware, 8 cases Lawn Mowers, 12 cases Scales.
By Arkell & Douglas.—80 dozen Handles, 26 packages Churns, 1 package Twine, 45 dozen Axes and Hatchets, 60 kegs Nails, 103 cases Hardware, 46 cases Agricultural Implements, 1 package Cordage, 45 boxes Sash Weights, 2 cases Forks, 6 packages Plated Ware, 26 packages Fruit Jars, 12 packages Washers.
By W. A. Wood Mowing and Reaping Machine Company.—20 Reapers.

PER BARK ADELAIDE, JUNE 23, 1892, FOR PORT ELIZABETH, SOUTH AFRICA.

By Norton & Sons.—7 barrels Corn Shellers, 1 case Plows, 15 cases Windmills, 2 cases Iron Pumps.
By the Coombs, Crosby & Eddy Company.—31 cases Plows and Parts, 3 cases Carriage Hardware, 20 packages Nails, 200 Plows.
By Winchester Repeating Arms Company.—1 case Guns, 16 cases Cartridges.
By R. W. Cameron & Co.—36 kegs Nails, 100 reels Barb Wire.
By John A. Gifford.—16 packages Plows, 3 packages Hardware.
By W. H Crossman & Bro.—272 cases Agricultural Implements, 250 cases Hardware, 22 cases Handles, 9 cases and 2 barrels Hinges, 100 coils and 3 packages Sisal Rope.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

In the more staple lines of Paints and Colors and in several lines of specialties business has been very good. For that matter, the general distribution would appear to be fully up to average volume for the month of June, while in the instance of some few commodities the movement is in flattering contrast with that of the preceding week. To this favorable outline of the situation may be added the statement that values have shown remarkable steadiness in nearly all departments, making altogether a condition of affairs more enviable than that which has frequently been experienced at this season of the year. Operations, however, do not reach remarkably large proportions in any department. Instead, a good, even patronage seems to be enjoyed nearly throughout and prices, with hardly an exception, remain very steady.

White Lead.—Corroders report a good average distribution of their product in this and near by markets, with the movement covering various sized packages, but relatively the best in the instance of small kegs. Sales of mixed Leads also keep up very well, and while competition becomes keen at intervals, values are quite as steady as they have been at any time during the past 60 days. As a matter of fact, irregularity in quotations by jobbers is less conspicuous just now than it was during the early part of June, and manufacturers' lists are more closely followed, although still deviated from more or less where purchases of other goods prompt concessions on the pigment as a "leader." The condition of the market for base materials and the surroundings otherwise are not indicative of any impending changes in corroders' figures.

Red Lead, Litharge, &c.—In the lines specified and in Orange Mineral there is a fair average business passing, although buyers' operations are still chiefly of hand-to-mouth character, and former prices prevail throughout, giving the market decidedly steady tone.

Zincs.—Owing to revision of prices by the manufacturers, local agents have issued a new list on the Vieille Montagne Zinc Company's brands of Oxide, quoting as follows:

Dry, in Lots of Less Than Ten Barrels.

Antwerp Red Seal	$0.07⅛
Antwerp Green Seal	.07¾
Paris Red Seal	.07⅞
Paris Green Seal	.09

Discounts remain at 1 % on lots of 10 barrels, 2 % on lots of 25 barrels and 4 % on lots of 50 barrels, one or mixed grades.

Ground in Poppy-Seed Oil.

	In drums.	In cans.
Red Seal:		
Less than 1 ton	$0.10¼	$0.10¾
Lots of 1 ton	.10	.10½
Green Seal:		
Less than 1 ton	.11¼	.11¾
Lots of 1 ton	.11	.11½

Current business in the imported article is moderate and hardly up to the former average for this season of the year. Introduction of high-grade domestic Zinc is accountable for this in a certain measure, but more general use of the ordinary quality is not without effect. Of the latter, sales are of seasonably good volume and deliveries still quite liberal, while prices for the several grades remain without change.

Colors, &c.—The sale of most descriptions of Dry and Oil Colors continues very good; not as free, perhaps, as might be wished, yet quite as good as during the early part of June. First quality goods for house painters' use continue steady at former prices, lower grades show about the usual variation, and on bulk goods for grinders' use the fluctuation is moderate. Ready-mixed Paints are finding somewhat irregular yet very fair aggregate sale, and the market for the goods is devoid of really new feature.

Paris Green.—Manufacturers report continued free deliveries of this article, particularly in small packages, and, in some instances where production has been below the June average, deliveries are rather backward at the moment. Prices therefore remain very steady at first hands and extreme low quotations made by some jobbers a few weeks ago are not repeated.

Miscellaneous.—Block Chalk has been sold to a fair extent at $2, and the market is quite firm. Whiting moves freely on back orders, but is otherwise rather quiet. Putty is in fair demand and unchanged as to price.

Oils and Turpentine.

In this line about the only change of any importance is an advance of about 2¢ on Lard Oil, due to enhanced cost of raw material. On other Oils values have continued remarkably steady, and the general surroundings at present are not suggestive of any impending changes of a radical character. Business has been rather slow in most departments, yet general distribution on home account appears to be quite as full as it usually is at this period of the year, and accumulations of supplies in manufacturers' hands are represented as being moderate. Generally speaking, existing conditions are favorable to steady values in most departments.

Linseed Oil.—Prices for city brands stand precisely as they were a week ago and for outside brands former quotations are named by agents. From second hands the offering is not sufficient to have any pronounced effect. Distribution has continued good, and that fact, in connection with the condition of the market for raw material, keeps the market in favorable shape. At present prices there is no incentive for the use of adulterants or substitutes and the movement of pure Oil proceeds steadily, comparing favorably with the average of the past two or three months and preventing any serious unwieldy accumulation on crushers' hands.

Cotton Seed Oils.—Apart from about 1500 barrels of refined product taken for export account there has been little movement the past week, and the demand from all quarters is rather slow at the present time. However, steady inroads are being made upon the supply held by manufacturers, and prices for all grades are held quite firmly. Business has been chiefly at 29¢ @ 29½¢ for prime crude and 32¢ @ 33¢ for prime Summer Yellow, and corresponding figures for other varieties.

Lard Oil.—Prices for Lard Oil have been advanced considerably by speculative influence, and pressers' quotations for Lard Oil are correspondingly higher. City brands of prime are now quoted at 58¢ @ 59¢, while out of town brands, full test, are not offered at much, if anything, less than 57¢ on the spot or to arrive. Production in this quarter is said to be very closely absorbed, and the demand continues good for the season, making altogether a firm market.

Fish Oils.—Thus far there has been little improvement in the Menhaden fishing, and the Oil that comes forward is nearly all taken at previous prices, say 30¢ @ 31¢ for Northern and 29¢ @ 30¢ for Southern product. In crude Whale Oil there has been rather more business, but the market for crude Sperm remains quiet. The manufactured products are without change in price and sell very fairly.

Miscellaneous.—There is rather better tone to the market for common Olive Oil and Cocoanut Oil, but sales are chiefly of routine character and the general demand is rather slow.

Spirits Turpentine.—Early in the week prices improved to 30½¢ @ 30¾¢ for regular and 31¢ for machine barrels, but somewhat freer offering, together with rather slow demand, caused a reaction, and the market latterly has been rather flat. Late arrivals increased the stock in receivers' hands at this port to 2000 barrels and caused prices to recede to 30¢ for regular and 30½¢ for machine barrels at the close.

The Clauss Household Knives.

The Clauss Shear Company, Fremont, Ohio, are introducing these knives, as illustrated herewith. The knives in Figs. 1 and 2 have scalloped or serrated edges, which, it is stated, add greatly to the cutting quality of the knives, and are referred to as an improvement over the knife with a plain edge for cutting bread or cake. In cutting bread or cake the knife is used as a saw. The manufacturers claim that warm bread can be cut as easily as cold, and that the crowning point of the cake knife is that cakes with frosting can be cut with exact nicety by simply drawing the knife across the frosting with a slight pressure, which will cut it without breaking or cracking it in the least. The bread and cake knives are both highly polished and finished, and all have strong, durable malleable-iron handles, each securely fastened by two rivets. The paring knife is referred to as being superior for that purpose. The point is made that the handles will not rot or wear out when left lying in water.

Fig. 1.—The Clauss Bread Knife.

Fig. 2.—The Clauss Cake Knife.

Fig. 3.—The Clauss Paring Knife.

The F. & N. Lawn Sweeper.

The F. & N. Mfg. Company, Richmond, Ind., are introducing a lawn sweeper, as illustrated herewith. The drive wheels are 10 inches in diameter, and are so placed in the construction of the sweeper that, it is stated, the weight of the machine comes on them, thus relieving the operator from carrying the weight of the debris which collects in the receptacle. The sweeping device is referred to as peculiar in that it is a combination of a brush and a rake. The brush for taking up small litter, as broken glass, short clippings of grass, shavings, small twigs, leaves, &c., while it is stated the rake will take up stones as large as an egg, also bones, pine cones, &c. It is claimed that the construction of the brush allows it to work over a smooth or rough surface, and by a slot in the side frame the hight of the brush may be regulated as desired. It is explained that the handle is attached in a way that makes the sweeper very easy to handle, and that the receptacle is large, holding a barrel of litter, and can be easily detached. The point is made that the sweeper is as useful in sweeping leaves in the fall as in sweeping grass in the spring. The manufacturers state that the No. 2 sweeper, which is 24 inches wide, will run as easily as a 16-inch lawn mower. Three sizes of sweepers are made, No. 1, 19 inches wide; No. 2, 24 inches wide, and No. 3, 36 inches wide. The receptacle is so constructed that it can be knocked down for shipping. The sweeper is designed for use in parks, picnic grounds and lawn tennis courts

The F. & N. Lawn Sweeper.

Pflueger's Slack Line Attachment.

The Enterprise Mfg. Company, Akron, Ohio, are introducing this article, as illustrated in the accompanying cuts. It is fastened on the pole, as shown in Fig. 2, near the large end, and is designed to take up the slack line. It may also be used to keep the hook in place, when not in use.

Fig. 1.—Pflueger's Slack Line Attachment.

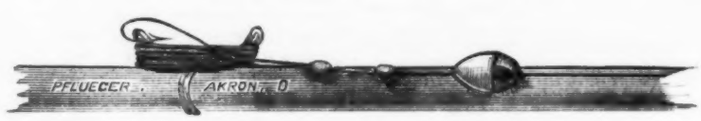
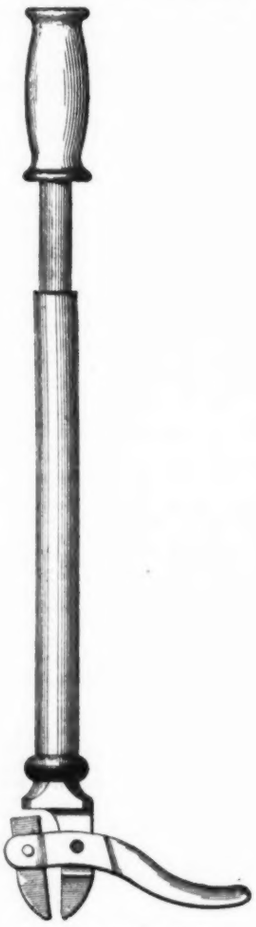


Fig. 2.—Application of Slack Line Attachment.

The Ellrich Nail Puller.

The Alford & Berkele Company, 77 Chambers street, New York, are introducing this article, as illustrated herewith. It has wrought-iron socket, malleable iron lever, Jessop's steel jaws, tempered, and machine steel rammer. The jaws are interchangeable and adjustable, and it is stated that a fractured jaw does not end the usefulness of the puller, as the jaw can be replaced at a slight cost. The puller has no springs, and the rammer handle does not come near enough to the socket to allow the hand to be mashed when operating the puller. The manufacturers claim that the puller cuts iron bands on boxes or bales, draws nails with or without heads, even if below the surface as much as ¼ inch, and that it pulls nails perfectly straight. The puller is 19 inches long and weighs 5 pounds.

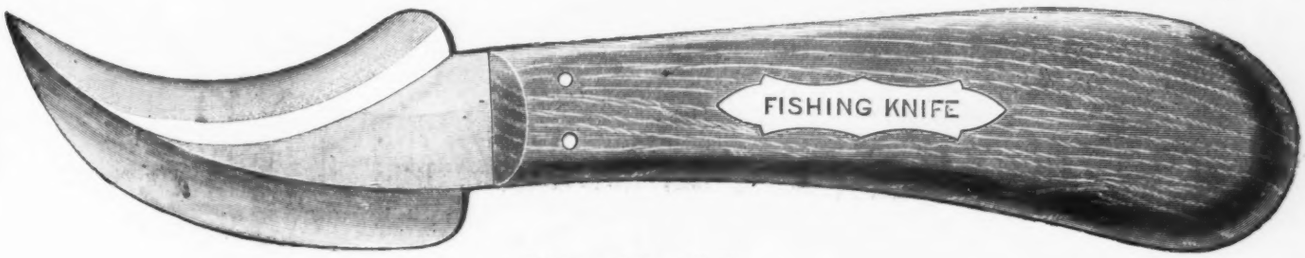


The Ellrich Nail Puller.

A Fishing and Camp Knife.

An illustration is herewith given of a new fishing and camp knife which has just been put on the market by Hibbard, Spencer, Bartlett & Co. of Chicago, for whom it is specially manufactured. The cut represents the full size of the knife. The blade is made of heavy forged steel, beveled on both sides and inserted into a solid cocoa handle, to which it is firmly riveted. Both the blade and the handle

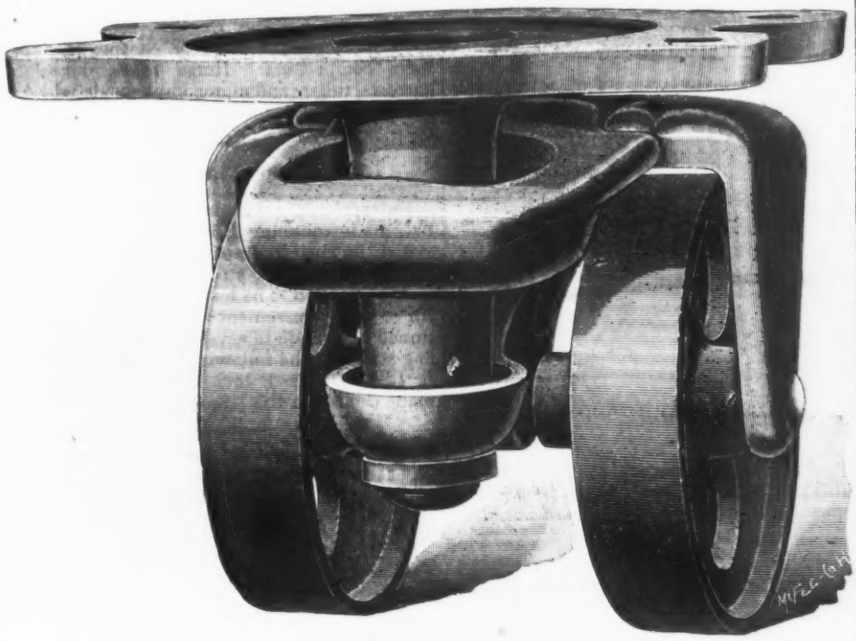
are handsomely polished. The handle bears a German-silver shield stamped "Fishing Knife." The handle has a hole through one end of it for a string. A heavy leather shield is furnished with this knife to protect the point of it when carried in the pocket. The knife is intended for general camp use, but it will also be found of service for other purposes, the firm stating that it will prove an excellent tool for cutting binder twine and performing other work in the hands of farmers.



Fishing and Camp Knife.

Gwinner's Hercules Truck Caster.

The Gwinner Mfg. Company, Hamilton, Ohio, are offering this caster, as illustrated herewith. The caster contains two floor wheels and one anti-friction wheel. The anti-friction wheel is one-half the diameter of the floor wheels, located in the rear of the axle, and has a convex face to lessen the friction on the plate. The stem pivots, by ball and socket in the foot step bearing, while the housing carries a separate constructed keeper for the stem. The anti-friction wheel is designed to distribute the weight on the caster and to prevent rattling. The axles are of steel, and are supported by the housing at each end and in the middle. The casters are made in three sizes, with diameter of floor wheels from 2½ to 4⅝ inches; hight of caster from 3½ to 6½ inches and carrying capacity from 600 to 4000 pounds.



Gwinner's Hercules Truck Caster.

The Nitro Rammer.

The Bridgeport Gun Implement Company, Bridgeport, Conn., and 313–315 Broadway, New York, are introducing this article, as illustrated in the accompanying cuts. They have placed this article on the market because of the necessity of exerting a uniform and steady pressure in loading high-grade paper shells with nitro powders. In using the rammer to seat wads over powder the rammer is pressed down until the spring comes to a stop. It is stated that when the springs are thus pressed down a uniform pressure of 19 pounds is produced, which, after a series of careful experiments, has been proven to the manufacturers as the most suitable pressure for the proper ignition of nitro powders in high-grade paper shells having extra strong primers. In loading nitro powders in ordinary paper shells with regular primers a much greater pressure must be used, and they therefore furnish extra strong springs to order (25 or 30 pounds pressure), which can be inserted in the regular nitro rammer. This is done by pressing the bottom spring, which protrudes through the slot inside the rammer, thus releasing the rammer head from the tube, when the spring can instantly be taken out and replaced. The heavy springs are only furnished to order.

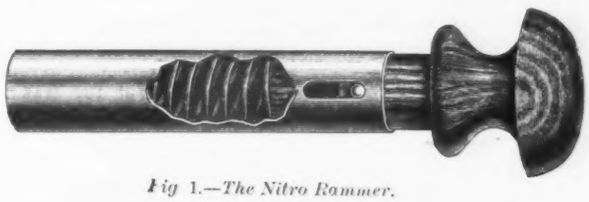


Fig. 1.—The Nitro Rammer.

Fig. 2.—Tube and Base for Nitro Rammer.

Dodd's Automatic Clothes Rack.

The Chas. E. Dodd Mfg. Company, Williamsport, Pa., are offering this rack, as illustrated herewith. Figs. 2 and 3 illustrate the manner in which the rack may be used. The manufacturers state that the rack has 30 feet of hanging surface, and that it is purely automatic in operation. It is explained that to close the rack the operator stands on the same side as the rollers are and takes hold of one of the top rounds; the rack is then drawn

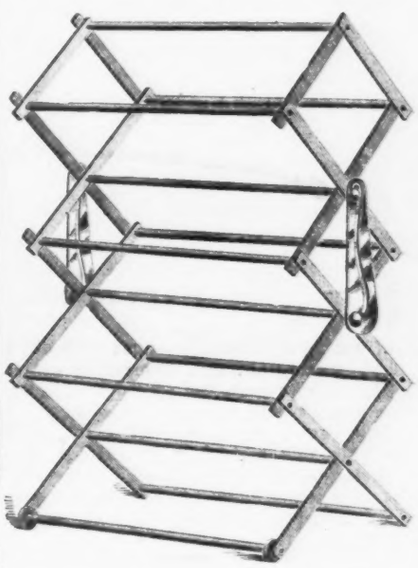


Fig. 1.—Dodd's Automatic Clothes Rack.

toward the person and raised a little, resulting in the rack closing itself. Following these directions the side bars or supports are thrown out of the pockets. For hanging over a stove or radiator, or to

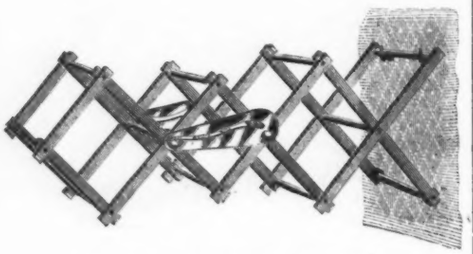


Fig. 2.—Dodd's Automatic Clothes Rack, Hanging.

suspend from the wall, as in Fig. 2, No. 4 or 5 screw hooks are used. When closed as in Fig. 3 it can be hung up or set aside in this compact manner, requiring little room. It will be noticed from this cut that one round, or either side of the rack,

Fig. 3.—Dodd's Automatic Rack, Closed.

is set in further than the rest. This is done to prevent the clothes touching or hanging over those on the round below, as well as giving better circulation of air through the entire rack.

Behren's Adjustable and Folding Line Spreader.

The Enterprise Mfg. Company, Akron, Ohio, are offering a line spreader, as illustrated herewith. It consists of two pieces

Behren's Adjustable and Folding Line Spreader.

of spring wire, running upon each other, and passing through a metallic center. The cut represents the spreader as closed, in which position it is 8 inches long. It may, however, be extended to nearly double this hight. It is referred to as having marvelous catching qualities, and designated as a fish raker. The spreaders are furnished in brass, nickel or German silver.

Sweatt's Barrel Tray.

Sweatt Mfg. Company, Minneapolis, Minn., are putting on the market the barrel tray represented herewith. It is described as made with staves or slats so shaped and bent that when bolted together they form a dish-shaped tray. The staves are held in place by dowel bolts, which pass through the several pieces and are then drawn closely together by the nuts on either end of the dowel bolts. This makes a tray which, it is claimed, will not split and is especially serviceable. The large capacity of the tray is also mentioned. Fig. 2 presents an illustration of the tray in connection with one of the company's barrows.

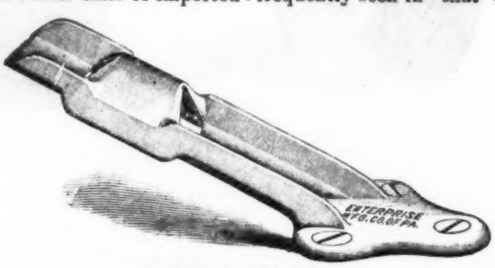
Fig. 1.—Sweatt's Barrel Tray.

Fig. 2.—Barrow with Sweatt's Barrel Tray.

American manufacturers of agricultural machinery are doing a good share in supplying the wants of farmers in France, and the British vice-consul at La Rochelle thinks it will be some time before Frenchmen can equal the better class of imported machines. The vice-consul says that up to the present moment the greater part of the more complicated and expensive machinery has been imported from England and America, and there has been no serious competition of home made with it; this is principally owing to its being more perfect, also in some degree to the fact that the duty and carriage do not increase the cost to the same extent as in the simpler and less costly articles. It seems odd that the United States is able to turn out these machines as good as English, send them 3000 miles, and sell them cheaper than their competitors. Horse rakes, horse harrows, rollers and minor implements sold last year were home made.

Enterprise Flag Holder.

Enterprise Mfg. Company, Philadelphia, Pa., are introducing a flag holder, as illustrated in the accompanying cut. It is referred to as being strong and well made, and is intended to be screwed to a window-sill or other convenient place. These are tinned and made in several sizes to receive flag staffs of the following thicknesses: $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and 1 inch. They are also made double in the $\frac{1}{2}$ inch size.



Enterprise Flag Holder.

The Philadelphia "mechanic's home," an exact reproduction of the characteristic small two-story brick dwelling house so frequently seen in that city, will be exhibited at the World's Fair, with the hearty indorsement of the Philadelphia Builders' Exchange.

Cross-Stitch Sewed Belt.

Boston Woven Hose & Rubber Company, Boston, Chicago and San Francisco, are offering a cross-stitch sewed belt, belt are in a straight line, because all the needles being fixed to a single steel bar. The comparative strength of the cross-stitch belt and other sewed belts is illustrated by the company in Fig. 3, the

Fig. 1.—Transverse Threads.

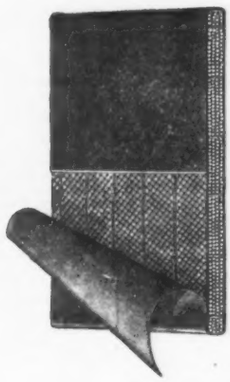


Fig. 2.—Longitudinal Threads.

without seam, as shown in Figs. 1 and 2. In this belt the threads on one side run longitudinally, while on the other side they are tied together by threads running transversely. Thus, it is stated, the belt is tied together thoroughly in all directions. It is explained that on this belt all of the longitudinal threads are tied together by the under transverse thread, so if one thread happens to have a tighter tension than the others the under thread equalizes it with the others, so that the entire number of threads have identically the same tension. By the nature of its construction the threads running across the section above the belt fasteners representing the cross-stitch belt. It is stated that in the cross-stitch belt the transverse threads are designed to run on the outside of the pulley, so that when the belt is run over a small pulley the threads do not break or weaken the belt by cutting into the duck.

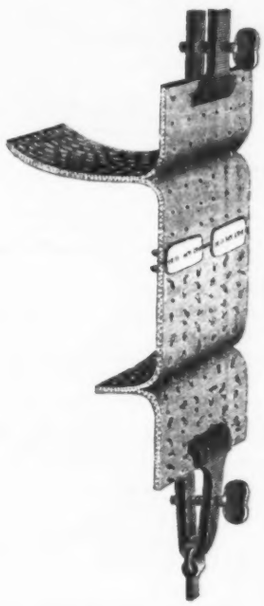
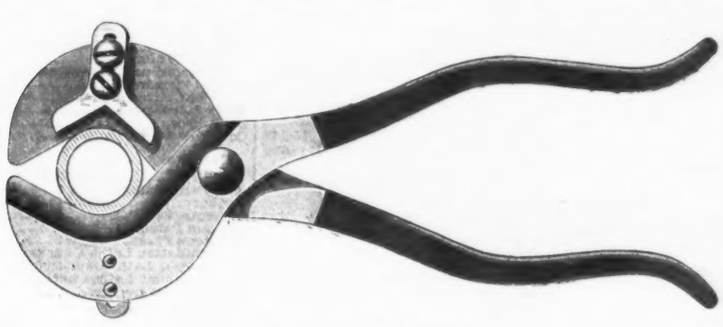


Fig. 3.—Testing Strength of Rubber Belts.

Harlow Lead-Pipe Cutters.

C. E. Barrett & Co., Brockton, Mass., are introducing this article, as illustrated herewith. The tool is made of the best quality steel, and the cutting edges are beveled on opposite sides so that flat surfaces work on each other as in shears. An adjustable brass gauge is attached to the flat surfaces of the blades, on opposite sides, each by two setscrews. The manufacturers claim that the cutters are efficient in execution, economical, durable, and that they cut pipe without either chips or burrs, or in any way distorting it. The point is made that they can be used where it would be impossible to operate a saw, and that they save time, trouble and expense by chips not getting into the pipes. The cutters are made in three sizes—No. 1 cutting-pipe from ⅛ to 1 inch, No 2 from 1 to 2 inches and No. 3 the same as No. 2, only made much heavier for thick and heavy work.



Harlow Lead-Pipe Cutters.

The forest trees on Puget Sound are the subject of an interesting letter from Tacoma. The trees are almost exclusively of the cedar, fir and pine varieties, stand closely on the ground, and range in height from 130 to a little over 300 feet. In diameter at the base they are often 6 and 8 feet. A "stick" being prepared for one of the sills of the Washington Exposition Building at the World's Fair is 125.4 feet long. The diameter at the base was 6.4 feet, and at the top 46 inches.

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CURRENT HARDWARE PRICES.

JUNE 29, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.

Domestic.....₩ dos $3.00, 33⅓%
Excelsior.....₩ dos $10.00.....50&10&2%
North's.....list net @10%
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils.—

Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....11@11½¢
Armitage's Mouse Hole.....10½@11¢
Am. Wrought, Horseshoe brand.11@11½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Chenev Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher, F. S. & W. Co.
Rockford Bit Company.
} 70&10&10 & 10&2%

Cook's, Douglass Mfg. Co.....55%
Cook's, N. H. Copper Co.50&10@50&10&5%
Ives' Circular Lip.....50%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 33⅓ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&10%
Pugh's Black.....20%
Pugh's Jenning's Pattern.....30%
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....60%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits.....30&10%

Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—

Clarks' small, $18; large, $26..35@35&10%
Ives' No. 4, ₩ dos $60.....40%
Swan's.....40%
Steer's, No. 1, $25; No. 2, $22.....40%
Stearns' No. 2, $48.....20%

Gimlet Bits—

Common.....₩ gross $2.75@$3.25
Diamond.....₩ dos $1.25.....4 &10%
Bee.....35@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co.....30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—

Ives
French, Swift & Co.
Douglass'
} 33⅓@ 33⅓&10%

Bonney's Adjustable, ₩ dos $48.....40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%

Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10&5%

Awl Hafts—See Hafts, Awl.

Awls—

Awls, Sewing, Common.₩ gr. 85@90¢
Awls, Should. Peg.....₩ gr. $1.50@$1.55
Awls, Pat. Peg.....₩ gr. 35@38¢
Awls, Shouldered Brad..₩ gr. $1.30@1.40
Awls, Handled Brad..₩ gr. $2.50@$3.00
Awls, Handled Scratch..₩ gr. $4.00@4.50
Awls, Socket Scratch..₩ dos. $1.10@$1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality, best brands	$7.00 @	$7.50
First qual., other brands	6.62½ @ 6.75	
Second quality	6.00	6.50

Axle Grease—See Grease, Axle.

Axles—

No. 1...3½@3¾¢, No. 2, 5¢@6¢
Nos. 7 to 14.....60&10%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
} 3% cash

Concord Axles, loose collar.....4¼@6¢
Concord Axles, solid collar.....5½@7¢
National Tubular Self-Oiling.....33⅓@33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—

Spring Balances.....40%

	No. 2000	20	30
Chatillon, ₩ dos	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....50&10%

Barb Wire.—See Wire, Barb.

Bars.

Crow—

Cast Steel.....₩ ℔ 3½¢
Iron, Steel Points.....₩ ℔ 3¢

Basins, Wash—

Standard Piberware, No. 1, 10½-inch, $2; 12-inch, $2.25; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '92...50&10@ 50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Benters—

Egg—

Dover.....₩ dos $1.50
Duplex (Standard Co.).....₩ dos $1.25
Rival (Standard Co.).....₩ dos $1.00
Duplex Extra Heavy (Standard Co.)..... ₩ dos $2.50
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral.....₩ gro $4.25 @ 4.50
Improved Acme (H. & R. Mfg. Co.)..... ₩ gro $9.00
Paine, Diehl & Co.'s.....₩ gro $24.00
Silver & Co .....₩ doz $5.50

Culinary—

Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2.....20%

Bells—

Cow—

Common Wrought.....60&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Kentucky Durham.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%

Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....60&10&2%
Crank Cone's.....10%
Crank, Connell's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%

Electric,

Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's.....20%

Hand—

Light Brass.....70&10%
Extra Heavy.....70%
White.....70%
Silver Chime.....33⅓&10%
Globe Cone's Patent).....25&10@35%

Miscellaneous—

Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....60&10@60&10&5%
Molders'.....40&10&50%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70@10@75&5%
Standard.....70&5@70&10%
Extra.....60&10@60&10&5%
N.Y.B.&P.Co., Carbon.....60%
N.Y.B.&P.Co., Diamond.....50%
N.Y.B.&P.Co., Para.....40%

Bench Stops—See Stops, Bench.

Benders and Upsetters, Tire.

Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—

Auger, Gimlet, Bit Stock Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Cleveland Block Co., Mal. Iron.50@50&10%
Moore's Novelty, Mal. Iron.....50%
Sure Grip Steel Tackle Blocks.....35%

Boards, Stove.

Wood Lined Crystal.....50%
Oxidized.....45%
Embossed.....50%
Paper Lined Zinc.....55%
Crystal.....55%
Embossed.....55%
New Tacoma.....55%

Bolts—

Carriage, Machine, &c.—

Com. list June 10, '84.....75&10&5&2%
Genuine Eagle, Norway, list Oct., '84... 80&80&10%
Phila. pattern, list Oct. 7, '84..75@75&10%
R.B.&W., old list.....70%
Machine, list Jan. 1, 1890..... 80@80&5%
Bolt Ends, list Jan. 1, 1890..... 75&10@75&10&5%

Door and Shutter—

Cast Iron Barrel, Square, &c.....70&10%
Cast Iron Shutter Bolts.....70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts 60&10@60&10&5%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's 60&10%
Wr't Shutter, Brass Knob.....40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....55&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B.K. Flush. Com'r.....25&10%

Stove and Plow—

Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%

Tire—

Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84....80%

Borers, Tap.

Common and Ring.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....30&10&30%
Clark's.....33⅓@35%

Borax.....₩ ℔ 9½@10½¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.

Per ℔.....2¾¢

Braces.—

American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 26.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5%
Ball Braces, net.....$1.12 to $1.26
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Ball.....$1.10@$1.1
Barber's,
Nos. 10 to 16.....50@50&10%
Nos. 30 to 33.....50@50&10%
Nos. 40 to 63.....50&10@50&10&5%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414 50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—

Shelf, plain.
Regular list.....65@70%
Sargent's list.....66⅔@66⅔&10%
Shelf, fancy.
Sargent's list.....66⅔@66⅔&10%
Other makes at a wide range of prices.

Bright Wire Goods—See Wire.

Broilers—

Henis' Self-Basting.	Inch.....	9	10	9x11
	Per dos...	$4.50	5.50	6.50

New Haven.....50%
Wire Goods Co.....55&10%
Morgan Odorless.....₩ dos $12, 33⅓%

Buckets, Well.

Galvanized—

Hill's.....₩ dos. 12 qt, $4.25; 14 qt, $5.2.
Iron Clad.....₩ doz. 14 qt, $4.25@$4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ dos $4.00

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers Butchers'.

Butts—

Brass—

Wrought Brass.....80@80&10%
Cast Brass, Tiebout's'.....80%
Cast Brass, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—

Fast Joint, Narrow.....50&10&5@60%
Fast Joint, Broad.....50&10@60%
Loose Joint.....
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns..
Parliament Butts.....
Mayer's Hinges.....
Loose Pin, Acorns.....
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips.....
} .75@75 &5%

Wrought Steel—

Fast Joint, Narrow.....
Fast Joint, Lt. Narrow.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c ....
Inside Blind, Regular.....
Inside Blind, Light.....
Loose Pin.....
} .75@75 &5%

Bronzed Wrought Butts.....60%

Calipers—See Compasses.

Calks, Toe—

Gautier, One Prong, Blunt.....5½@6¢
Burke's, One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7½@8¢
Burke's, One Prong, Snarp.....6½@7¢

Can Openers—See Openers Can

Caps—

Percussion, ₩ 1000—

Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....35@37¢
B. B. Trimmed Edge, 1-10's.....47@50¢
B. B. Grnd. Edge, Cent. Fire, 1-10's.... 47@50¢
Musket Waterproof, 1-10's.....50@53¢
G. D.....27@30¢
A. B. Genuine Imported.....45¢
Eley's E. B.....56¢ @ 58¢
Eley's D Waterproof, Central Fire...$1.60

Primers—

Berdan Primers, $1.00.....2%
U. L. Caps (for Sturtevant Shells) $1.00.....2%
All other Primers, $1.20.....2%

Cards—List January 28, 1891.

Watson's Cotton, Wool, Horse and File.....33%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sweepers Carpet.

Cartridges—

Rim Fire Cartridges.....50&5&2%
Rim Fire Military.....15&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Cent. Fire, Military and Sporting 15&5&2%
Blank Cartridges, except 22 and 32 cal., additional 10% on above discounts.
Blank Cartridges, 22 cal., $1.75.....2%
Blank Cartridges, 32 cal., $3.50.....2%
Primed Shells and Bullets.....15&5&2%
B. B. Caps, Round Ball, $1.75.....2%
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Casters—

Bed.....
Plate.....
Shallow Socket.....
} Brass....55@55&10% Others...60@60&10%

Deep Socket.....40&10%
Yale Casters, low list.....45%
Yale, Gem.....70%
Martin's Patent (Phœnix).....45&10@60%
Payson's Anti-friction.....70%
Payson's Truck.....60%
Giant Truck Casters.....30%
Stationary Truck Casters.....60&10%
Socket Truck Casters.....60%

Cattle Leaders—See Leaders, Cattle.

Cement.

Victor Elastic.....5 ℔ pails ₩ ℔ 5¢

Chain—

Trace, Wagon and Fancy Chains, List revised April 21, 1890.....60@ 60&10%

American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.60	5.45	4.45	3.80	3.65	2.80	2.40	2.35

Less than cask lots, add ½@1½¢ ₩ ℔.
German Coil, list Oct. 6, 1890..60@60&5%
German Halter Chain, list Oct. 6, 1890 60@60&5%
Covert Halter.....60&2%
Covert Traces.....60&5%
Covert Heel Chain.....50&5%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—

White, case lots, ₩ gr 50¢; small lots 55 @55¢
Red, case lots...₩ gr 67¢; small lots 77 @75¢
Blue, case lots...₩ gr 75¢; small lots 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—

Socket Framing and Firmer.

P. S. & W.
New Haven
Witherby.
Mix.
} .75 @ 75&10%

Ohio Tool Co.
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....50@30&5%

Tanged and Miscellaneous.

Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔.....15@10%

Chucks—

Beach Pat.....each, $8.00.....20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Graham Patent.....33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union, each, 5 gal. $3.25; 7 gal., $3.75; 10 gal., $4.25.
McDermaid Star Barrel Churn, each 6 gal., $2.60; 10 gal., $2.75; 15 gal. 3.00 20 gal., 3 25

Clamps—
B. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.
Butchers'.
Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—
Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16. 65&5%
Superior Axle Clips.....60%&5&70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5½¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....60%

Cocks, Brass.
Hardware list.....50&2%

Coffee Mills—See Mills, Coffee

Collars, Dog, &c.
Chapman Mfg. Company.....50&10@60%
Medford Fancy Goods Co.....40&10@50%
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%

Combs, Curry.
Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....30%
American Curry Comb Co.....Net prices

Compasses, Dividers, &c.—
Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord—
Sash.
Common.....₩ lb, 10¢ @ 11¢
Patent, good quality.....₩ lb, 12 @ 12¢
White Cotton Braided, fair.₩ lb, 24¢@25¢
Common Russia Sash.....₩ lb, 12½@13¢
Patent Russia Sash.....₩ lb, 14¢
Cable Laid Italian Sash.....₩ lb. 21@22¢
India Cable Laid Sash.....₩ lb, 12¢
Silver Lace—
A Quality, White, 50¢.....25 %
A Quality, Drab, 55¢.....25 %
B Quality, White, 30¢.....10 %
B Quality, Drab, 35¢.....10 %
Sylvan Spring. Extra Braided White,34¢
Sylvan Spring, Extra Braided, Drab..39¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....26¢
Massachusetts, White.....26¢
Samson—
Braided, White Cotton, 50¢..30@30&5%
Braided, Drab Cotton, 55¢..30@30&5%
Braided, Italian Hemp, 55¢..30@30&5%
Braided, Linen, 80¢.....30@30&5%
Tate's Cotton Braided, White.₩ lb ,28¢,10%
Wire Picture.
Braided or Twisted.....75&10%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—
Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—
Grain.....50&5&2@50&10&2%

Crayons.
White Crayons, ₩ gross.....10¢
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—
Meat.
Dixon's ₩ doz.....40&5%
Nos..... 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's ₩ doz.....40&5%
Nos..... 100 150
$15.00 $18.00
Hales Pattern ₩ doz.....70@70&5%
Nos..... 11 12 13
$27.00 $33.00 $45.00
American.....30%
Nos..... 1 2 3 4 5 5
Each.....$5 $7 $10 $25 $50 $60
terprise.....30%
Nos..... 10 12 22 32 42
Each.....$3 $2.50 $4 $6 $15
at American Meat Cutter.....30%
Nos..... 112 116 118 120 122
Each....$2.00 $2.75 $3.00 $2.50 $4.00
Miles' Challenge ₩ doz.....45@45&10%
Nos..... 1 2 3
$22.00 $30.00 $40.00
Home No. 1 ... ₩ doz $26.00, 55&10%
Draw Cut, each:
Nos. 5 6 8
$50 $75 $80 $225.....20@25%
Beef Shavers (Enterprise).....20&10@30%
Little Giant (P. S. & W. Co.).....50%
Chadborn's Smoked Beef Cutter, ₩ doz $66.00
Tobacco.
Champion.....20&10@30%
All Iron.....₩ doz $4.25
Nashua Lock Co.'s..₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%
Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's.....₩ doz $11.00, 33⅓%
Penny's, ₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Dampers, &c—
Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—
Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $12.50@14.00
Leed's.....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz. 17.00
Kohler' New Champion.....₩ doz. $9.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $24.00
Cronk's Post Bars, ₩ doz $60.00, 50&5&50&10%
Gibbs Post Hole Digger.....₩ doz $15.00
Imperial.....₩ doz $7.50
Shimer's Hollow Handle,₩ doz, $24..50%

Dividers—
See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.
Money, ₩ doz.....$18&$30

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's.....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll s.....25%
Ratchet, Parker's.....20@20&5
Ratchet, Whitney's.....20&10%
Retchet, Weston's.....20@25%
Ratchet, Moore's Triple Action..25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85
Twist Drills—
Cleveland.....50&10&5%
Diamond, W. & B.....50&10&5%
Graham's Pat. Groove Shank 50&10&5%
Morse.....50&10&5%
New Process.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%

Drill Bits or Bit Stock Drills—
See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans—See Pans, Dripping.

Drivers, Screw.
Douglas Mfg. Co.....20@20&10%
Disston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles.....65&10%
No. 86.....70&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60.....60%&10&10%
P. S. & W.....70 %
Knapp & Cowles:
No. 1.....60&10@70%
No. 3.....60&10&10@70&5%
No. 8.....50&5@60&10%
Nos, 4 and 00, Acme and Ideal..50& 5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kolb's Common Sense ₩ doz $6.00.25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits.....₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3. $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits.....

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.—No. 4 to No. 54 to Flour,CF

	46 gr.	150 gr.	F. FF.
Kegs, ₩ lb.....4½¢	5 ¢	2½¢
½ kegs, ₩ lb..4½¢	5½¢	2½¢
¼ kegs, ₩ lb...5 ¢	5½¢	3 ¢
10-lb cans, 10 in case.....6 ¢	6½¢	5 ¢
5-lb cans, less than 10.....10	10 ¢	

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Expanded Metal.
List No. 5.
Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Extractors, Lemon Juice—See Squeezers, Lemon.

Fasteners, Blind—
Mackrell's, ₩ dos. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$9.00
Zimmerman's.....45 %

Faucets.—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@ 60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $36.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—
Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—
Domestic—
Nicholson Files, Rasps, &c. 60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
G. & H. Barnett (Black Diamond). 60&10@60&10&5%
Arcade.....60&10@60&10&10%
Eagle.....60&10&5@60&10&10%
Other makers, best brands60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea orse Rasps, Hand Cut...50&10%
Arcade orse Rasps.....60&10%
Imported -
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%

Fixtures.
Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—
Hay, Manure, &c., Asso. List...70@70&5%
Hay, Manure, &c., Phila. List,60@60&10%
Plated, see Spoons.

Frames—
Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%
Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%
Cortland.....40@40&5%

Freezers, Ice Cream—
White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic.....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....60%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless.....60&10%
Giant.....60%
Zero.....60&10&10%
Boss and Pet.....60&10&10&10%
Keystone, P. D. & Co., each $1.50.....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.
Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10 %; 2 to 5 gro., 20 %; 5 to 10 gro.....30 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....25 %

Furnaces, Soldering.
Burgess No. 3 Gem, tin reservoir....$7.00
Burgess No. Gem, copper reservoir 8.50
Fuse—Dia. 12½%. ₩ 1000 ft
Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 3.35
Single Taped Fuse, for wet ground.. 3.35
Double Taped Fuse, for very wet gr. 4.35
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—
Stebbin's Pattern.....30@30&5%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Bush's.....30%
Lincoln's Pattern.....70@70&10%
Weed's.....30&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.
Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....30&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....35%
Wire, Brown & Sharpe's.....10@20%
Wire, P. S. & W. Co.....10&10

Gimlets—
Nail and Spike.....50&10&5%
Eureka Gimlets.....40&10%
Diamond Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid.....30%
Improved Process.....25@25&5%
Dodd's Liquid Glue.....25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.
Fraser's.....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $2.50
Dixon's Everlasting, in bxs..₩ doz 1 lb $1.20; 2 lb $2.00
Dixon's Everlasting....10-lb pails, ea. 85¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—
Small, at factory.....₩ ton $7.50@8.00
Family, regular list.....60%
Family, Cleveland Stone Co.....20 %

Grindstone Fixtures—See Fixtures Grindstone.

Gun Powder—See Powder.

Hack Saws—See Saws.

Hafts, Awl.
Sewing, Brass Fer.₩ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₩ doz.....10&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top.₩ gr $10.00...45&10%
Pat. Peg, Leather Top.₩ gr $12.00.45&10%

Halters.
Covert's, Rope, Jute..... 60&10&10&2½
Covert's, Rope, 7-16-in., Jute.....70&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
E. Covert Mfg. Co.'s Halters.....33⅓%
E. Covert Mfg Co.'s Horse and Cattle Ties.....33⅓

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.
Humason & Beckley
Atha Tool Co.
Verree.....50@50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumb.
Artisans' Choice, A. E. Nail.....40&10%
Regular Y. & P., A. E. Nail.....50%
Horseshoe Turning Hammers.....50%
Other Hammers.....50&10%
Cheney's Claw.....40&10%
Cheney's Machinist's & Riveting.50&5%
Hartford, Nail Hammers.....40&5%
Hartford, Machinists, &c...50&5&50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles, new list.....25&10
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
3 lb and under.....₩ lb 40¢
3 to 5 lb.....₩ lb 36¢ } 70@70&10%
Over 5 lb.....₩ lb 30¢
Wilkinson's Smiths.....10½¢@11¢₩ lb

Handcuffs and Leg Irons—See Police Goods,

Handles—
Cross-Cut Saw Handles—
Atkins' No. 1 Loop,₩ pr.,28¢; No 3, 18¢; No. 6, 15¢; No. 2 and No. 4, Reversible, 18¢.
Champion.....18¢
Iron, Wrought or Cast—
Door or Thumb.
Nos..... 0 1 2 3 4
Per doz....$0.90 1.00 1.10 1.35 1.50
60&10&
Boggin's Latches.....₩ doz 30¢@3e
Bronze Iron Drop Latches..₩ doz 70¢ n
Jap'd Store Door Handles—Nuts, $1.62 ½ Plate, $1.10 ; no Plate, $0.88 ..... net
Barn Door, ₩ doz $1.40.....10&10%
Chest and Lifting.....70%
Wood—
Saw and Plane.....40&10@40&10&5
Hammer, Hatchet, Axe, &c... 40@40&5%
Brad Awl.....₩ gr $2.00
Hickory Firmer Chisel, ass'd. ₩ gr 4.50 } 60@60&10%
Hickory Firmer Chisel, large. ₩ gr 5.00 }
Apple Firmer Chisel, ass'd...₩ gr 5.00
Apple Firmer Chisel, large...₩ gr 6.00
Socket Firmer Chisel, ass'd..₩ gr 3.00
Socket Framing Chisel, ass'd.₩ gr 5.00
J. B. Smith & Co.'s Pat File..... 50
File, assorted.....₩ gr 2 75
Auger, assorted.....₩ gr 5.00 } 50%
Auger, large.....₩ gr 7.00
Pat. Auger, Ives'.....30&1
Pat. Auger, Douglass.....₩ set $1.35
Pat. Auger, Swan's.....₩ set $1.00
Hoe, Rake, Shovel, &c.....50&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Ultmax Anti-Friction.....55%
Ultmax Anti-Friction for Wood Track55%
Smith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling.....50&50&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....40&10@50%
Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ₩ dos pr. 4 in, $10.00; 5 in. $15.00.....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50@5%
Wood Track Iron Clad, ₩ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ₩ set $6.00.....20%
Eclipse.....20&10%
Felix, ₩ set $4.50.....20%
Richards'.....30@30&10%
Lane's Standard.....50&5&50&10%
Lane's New Standard.....50@50&5%
Lane's Parlor.....40%
Ball Bearing Door Hanger..20&10@35&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, ₩ set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel Cast Iron.....50%
Nickel, Malleable Iron and Steel.....40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%
Pendulum, Payson's.....40%
Moody.....45%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's
Hunt's
Hurd's
Mann's
Peck's
Underhill's
Buffalo Hammer Co.
Fayette R. Plumb.
C. Hammond & Son.
Kelly's
Sargent & Co.
P., S. & W. Co.
Ten Eyck Edge Tool Co.
} 40 & 10 @ 50&5 %
Collins.....10%
Schulte, Lohoff & Co.....50&50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 2, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's Nos. 1, 2, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible.....70&10&25@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%

Gate Hinges—

Western.....₩ dos $4.40, 60%
N. E.....₩ dos $7.00, 55%
N. E. Reversible.....₩ dos $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....₩ dos $5.00, 55&10%
Automatic.....₩ dos $12.50, 50%
Shepard's.....60&10&5%

Spring Hinges—

Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March 1886.....2 %
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent.....40%
Acme.....30%
U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem, and Star.....20%
Oxford.....20%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....60%
Reliable.....60%
Champion.....60%
Stearn's.....50&10%
Samson, ₩ gross.....$14.00
} Extra (@10 % often given.

Wrought Iron Hinges.

List February 14, 1891.
Strap and T.....60&10@5 &10&5%
Corrugated Strap & T.....50@50&10%
Screw Hook and Strap..... { 6 to 12 in., ₩ D., 4¢ / 14 to 20 in., ₩ D.,3½¢ / 22 to 36 in., ₩ D., 3¢
Screw Hook and Eye.... { ⅜ in., ₩ D 7½¢ / ½ in., ₩ D 5½¢ / ⅝ in., ₩ D 4½¢
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges { "Providence" { 8, 10 & 12 in., ₩ D.....5¢ / over 12 in., ₩ D.....4¢

Hoes—

Eye—

D. & H. Scovil.....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat. } 70@70& Am. Axe and Tool Co., S. & O. } 5% Pat.
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60&10%

Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton &c.....70%
Warren Hoe.....60%
Magic.....₩ dos $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₩ dos $18.....60%

Bit.

Extension,
Barber's, ₩ dos $15.00.....40@40&10%
Ives, ₩ dos $20.00.....60&5@60&10%
Diagonal.....₩ dos $24.00, 40%
Angular.....₩ dos $24.00, 40&5%

File and Tool—

Bais Pat.....₩ dos $4.00; 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list.....
Bird Cage, Reading.....
Clothes Line, Sargent's list..
Clothes Line, Reading list. 60&10@60&10&10%
} 60&10&10%
Ceiling Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%

Wrought Iron—

Cotton.....₩ dos $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 20%
Tassel and Picture (T. & S. Mfg. Co.)..50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886.....60@60&10%
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat..45@45&5%
Wire Coat and Hat, Standard.60@60&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80&80&10%
Atlas, Coat and Hat.....60@60&10%
Bright Wire Goods, see *Wire*.

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₩ dos $2.25
Bush.....55@60%
Whimetree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks.....See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition.....75@75&10&5%
Standard.....60&10&10@70&10%
Extra.....60@60&10%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee....50&10 @ 60%

Huskers—

Blair's Adjustable.....₩ gr $8.00
Blair's Adjustable Clipper....₩ gr 7.00
Hubbard's Solid Steel.....₩ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory....₩ 100 ℔, $2.30@$2.40
Self-Heating.....₩ dos $9.00
Self-Heating, Tailors'.....₩ dos $18.00
Mrs. Pott's Irons.....60@60&10%
Enterprise Star Irons.....60@60&10%
XX Cold Handle Sad Iron.....60@60&10%
Ideal Irons new list.50&10@50 & 10&10%
Salamander Irons.....25%
B. B. Sad Irons, ₩ ℔.....3 @3¼¢
Combined Fluter and Sad Iron, ₩ dos, $15.00.....15%
Fox Reversible, Self-Fluter ₩ dos $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England.....8¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓ %
National Self-Heating.....30 %

Soldering—

Soldering Coppers.....₩ ℔ 19 @ 21¢
Covert's Adjustable, list Jan. 1 1886. 35&2%

Irons, Pinking, per dos., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

Kettles—

Brass, Spun, Plain, list Jan. 1, '91..25&5%
Brass, Spun, Pld.W.M. list Jan. 1, '91.20%
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....
Ratchet Bed Keys.....₩ dos $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives, List Dec. 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's AAA1, Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in., $2.00; 7 in., $2.70; 8 in., $3.80, &c.
Ames' Shoe Knives.....20@25%
Ames' Bread Knives, ₩ dos $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent.....$3.50

Corn—

Bradley's.....10%
Wadsworth's.....25%

Drawing—

Witherby
P. S. & W.
Mix
New Haven
Merrill
} .75 @ 75&10 %

Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Hay and Straw—

Lightning, from jobbers....$8.00 @ $9.00
Wadsworth's.....40&7½&40&10%
Carter's Needle.....₩ dos $11.00@$11.50
Heath's.....₩ dos $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw.....40%
Nolin's Hay.....₩ dos. $7.00 @ $8.00

Mincing.

Am. (2d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $15.....net
Lothrop's.....20&10%
Smith's, ₩ dos, Single, $2.00; Double, $3 40@45%
Knapp & Cowles.....50&10&50%
Buffalo Adjustable.....₩ dos $3.00 25%
Buffalo Double Adj'table.₩ dos $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10&50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....₩ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladies.—

Melting, Sargent's.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...₩ dos $4.00, 40%
Melting, P. S. & W.....35&10@40%
Melting, Warner's.....30%

Lanterns—

Tubular—

Regular, with Guard.....₩ dos $3.50
O. K., with Guard.....₩ doz $3.75
Sid Lift, with Guard.....₩ doz $4.00
Sun e Lift, with Guard.....₩ doz $4.25
Anti-Friction, with Guard...₩ doz $4 50
Brass Plated, Sq. Lift, Guard. ₩ doz $5 50
Cop. Plated Sq. Lift, Guard. ₩ doz $5.50

Police Lanterns (exceeding packages).

2¾-inch Bull's-eye Police regular.....₩ dos $3.60
3-inch Bull's-eye Police regular.....₩ dos $3.90
2¾-inch Bull's-eye Police flash light ....₩ dos $4.00
3-inch Bull's-eye Police flash light ₩ dos $4.50

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason, Beckley & Co.'s.....70%
Sargent's.....60%&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Feb. 20, 1891.
Bronzed Iron Rods.....50&10&10&2%
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&. %
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60&10%
Imperial.....60&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk.....50%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....50%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4 $2.00; No. 4½ $2.50.....
Mason's Colored Cotton.....47½
Wire Clothes.. Nos. 19 19 20
100 ft.....$3.50 $3.00 $2.50
Ventilator Cord, Samson Braided White or Drab Cotton..₩ dos $7.50, 20%

Links, Open.

Terry's—per gro.:

Nos.....	1	2	3	4
	$6.00	8.00	12.00	16.00

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85..33⅓&2%
Deits, Nos. 36 to 39.....40%
Deits, Nos. 51 to 63.....40&10%
Deits, Nos. 86 to 96.....30%
Stoddard Lock Co.....35%&33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....35&2%
"Champion" Cab. and Combin...33⅓&5
Yale.....net prices
Romer's.....25%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 20, 1889.....
Mallory, Wheeler & Co., list July, '88.....
Sargent & Co., list Aug. 1, '88.....
Reading Hardware Co., list Feb. 2, '88.....
Branford Lock Works.....
} 65&10@70% Much lower net prices often made.

Brittan, Granam & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deits Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Brooklyn Latches.....50&10%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....35%

Padlocks—

List June 10, 1891.....50&2%
Norwich Lock Mfg. Co., old list...70&3%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....35&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deits.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....30%
Horseshoe.....₩ dos, $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....35%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian. Nos. 119, 120, 130 and 140.....90&10%
Other Nos.....65%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker Barry & Co.
No. 1010 line.....35&25%
No. 41 line.....45&10%
No. 61 line.....50&25%
No. 21 line.....75%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₩ gr..33⅓%
Ferguson's.....33⅓%
Victor.....60&10&3%
Walker's.....10%
Attwell Mfg. Co.....35&33⅓%
Reading.....60&10@60&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'sed.....₩ gr $4.00
Common Sense, Nickel Plated ₩ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....35&5&2%
Stoddard "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Fish (Liesche's pat.), No. 100, ₩ gr., $8; No 105, ₩ gr., $10.....40%
Davis, Bronze, Barnes Mfg. Co.....50%
Champion Safety, list January, 1889..70%
Security.....70%
Giant, list Jan.. 1892.....70&5%
Wolcott's.....60&10&5%
Monarch.....50%

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₩ dos, $1.75; ₩ gross.....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.
Douglas	$5.50	$6.75	80%
Snell's, Rice's Pat.	5.50	6.75	40&10&10%
Jennings	5.50	6.75	45&10&10%
Other Machines...	2.25	2.75	
Phillips' Patent with Augers	7.00	7.50	
Miller's Falls	7.50		35%

Fluting—

Knox, 4½-inch Rolls.....$3.25 each
Knox, 6-inch Rolls.....$3.60 each } 35%
Eagle, 3¼-inch Roll, $2.15.....35%
Eagle, 5¼-inch Roll, $3.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₩ dos $12, 35%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₩ dos 15.80.....40%
Shepard Hand Fluter, No. 110 ₩ dos $11.00.....40%
Shepard Hand Fluter, No. 95 ₩ dos $8.00.....40%
Clark's Hand Fluter, ₩ dos $15.00.....35%
Combined Fluter and Sad Iron, Buffalo ₩ dos $15.00.....30% ₩ dos $10.00.....10%

Hoisting—

Moore's Hand Hoist, with Lock Brake.....30%
Moore's Differential Pulley Block...40%
Energy Mfg. Co's.....25%
Sure Grip Steel Tackle Blocks.....25%

Washing—

Anthony Wayne, ₩ dos No. 1, $51 No. 2, $45 No. 3 $42
Western Star ₩ dos No. 2, $45; No. $48
Weisel.....₩ dos $54.00
Fair and Square.....₩ dos $42.00

Mallets.
Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Mattocks. Regular list. 60&10@60&10&5%

Measures—
Standard Fiberware, No. 1, peck, ₩ dozen, $4: ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Menders, Harness—
Per doz.....$2.00

Mills.
Coffee—
Box and Side, List Jan. 1, 1888. 60@60&10%
Net prices are often made which are lower than above discount.
American, Enterprise Mfg Co. 20&10@30%
The Swift, Lane Bros.....20&10%

Mincing Knives—See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers—See Drawers, Money.

Mowers, Lawn.
Philadelphia.....60&10%
Pennsylvania and Continental.....60%
New Model and Excel lor 60@60&10%
Other Machines.....60&10&10@75%

Muzzles—
Safety.....₩ doz. $3.00, 25%

Nails.
Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, Apr. 11, '92 80&10&10%
Tack Mfrs.' list.....70@70&10%
Wire Nails, Standard Penny.
Card June 1 '89 base.....$1.95 @ $2.00

Horse—

	Nos. 6	7	8	9	10	
American	8¼	8¼	8¼	8¼	8¼	net
Ausable	28	26	25	24	23	40&5&2½
Clinton, Fin.	19	17	16	15	14	30&10%
Essex	28	26	25	24	23	40&10&5&2%
Lyra	19	17	16	15	14	40&5 %
Snowden	19	17	16	15	14	40&5 %
Vulcan	25	23	20	19	18	25%
Northwest'n	28	23	22	21	20	25@25&5%
A. C.	25	23	22	21	21	25&10@33⅓&5%
C. B.-K.	28	23	22	21	21	25&10@33⅓&5%
Maud S.	28	23	22	21	21	40&10&5 %
Champlain	28	26	25	24	23	40&5&5&2%
Saranac	23	21	20	19	18	40&5%
Champion	25	23	22	21	20	10&10&10%
Capewell	19	18	17	16	15	10%
Anchor	23	21	20	19	18	30%
Western	23	21	20	19	18	50%
Empire Bronzed						14 ₩ ₺.

Picture—
Brass Head, Sargent's list.....60&10&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Niles' Patent.....40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—List Dec. 18, 1889.

	Square.	Hex.
Hot Pressed	5.35¢	5.95¢ off list.
Cold Punched	5.00¢	5.10¢ off list.

In packages of 100 ₺, add 1-10¢ ₩ ₺, net; in packages less than 100 ₺, add ½¢ ₩ ₺, net.

Oakum—
Best or Government..₩ ₺ 6¾@7¼¢
U. S. Navy.....₩ ₺ 5¾@6¢
Navy.....₩ ₺ 5¢@5½¢

Oilers—
Zinc and Tin.....65&10@70&5%
Brass and Copper.....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₩ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list.....40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Gem P. D. & Co.....₩ gro. $2
Steel, Draper and Williams.....50%

Openers, Can.
Messenger's Comet.....₩ doz $3.00, 25%
American.....₩ gross $2.75@$3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....₩ doz $3.75, 20%
No. 4 French.....₩ doz $2.25, 55@60%
No. 5, Iron Handle.....₩ gr $6.00, 45@50%
Eureka.....₩ doz $2.50, 10%
Sardine Scissors.....₩ doz $2.75@3.00
Star.....₩ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50- 50&10&10%
Excelsior No. 1 $2.50; No. 2, $1.50 ...40%
World's Best, ₩ gross, No. 1, $12.00- No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₩ doz $3.00.....55&5%
Domestic, ₩ doz $2.50.....45%
Champion ₩ doz $2.00.....50%

Packing, Steam—
Rubber—
Standard.....70@70&10%
Extra.....60@60&5%
N. Y. B. & P. Co., Standard.....50%
N. Y. B. & P. Co., Empire.....60%
N. Y. B. & P. Co., Salamander.....25%
Jenkins' Standard. ₩ ₺ 80¢....25@25&5%

Miscellaneous—
American Packing.....10¢@11¢ ₩ ₺
Russia Packing.....14¢ ₩ ₺
Italian Packing.....13¢@14¢ ₩ ₺
Cotton Packing.....15¢@17¢ ₩ ₺
Jute.....7¢@8¢ ₩ ₺

Pails.
Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₩ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₩ dz.	3.00	3.25	3.75
Heiwig's.	2.50	2.75	3.00
Sidney Shepard & Co.	2.35	2.85	3.05
Iron Clad	2.50	2.75	3.00
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—25%
Star Pails, 12 qt.....₩ doz $5.40
Stable and Milk, 14 qt.....₩ doz $6.00
Fire Pails, deep.....₩ doz $5.40
" " round bottom.....₩ doz $7.80

Standard Fibre Ware—

	Plain.	Deer'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14-qt.	6.50	7.50

Pans.
Dripping.
Smalls sizes.....₩ ₺ 6¼¢
Large sizes.....₩ ₺ 5½¢
Silver & Co. (Covered).....40%

Fry—
Standard List:

No.	0	1	2	3	4	5
₩ doz.	$3.00	$3.75	$4.25	$4.75	$5.25	
No.	5	6	7	8		
₩ doz.	$6.00	$7.00	$8.00	$9.00		

Polished, regular goods.....75@75&10%
Acme Fry Pans.....60&10%

Dust—
Steel Edge, No. 1.....₩ doz $1.75

Paper and Cloth—
Sand and Emery—
List April 19, 1886.....50@50&10%
Sibley's Emery and Crocus Cloth.....30%

Parers.
Apple.
Advance.....₩ doz $4.75
Baldwin.....₩ doz 5.25
Bonanza.....each 5.00
Daisy.....₩ doz 4.00
Dandy.....each 7.50
Eclipse.....₩ doz 4.25
Eureka, 1888.....each 16.00
Family Bay State.....₩ doz 12.00
Favorite.....₩ doz 5.00
Gold Medal.....₩ doz 4.00
Ideal.....₩ doz 4.00
Improved Bay State..₩ doz 27.00 @ 30.00
Little Star.....₩ doz 4.50
Monarch.....₩ doz 13.50
New Lightning.....₩ doz 5.50
Oriole.....₩ doz 4.00
Penn.....₩ doz 4.00
Perfection.....₩ doz 4.00
Pomona.....₩ doz 4.00
Rocking Table.....₩ doz 6.00
Turn Table.....₩ doz 4.50
Victor.....₩ doz 13.50
Waverly.....₩ doz 4.00
White Mountain.....₩ doz 4.00
72.....₩ doz 4.25
78.....₩ doz. 7.00

Potato—
White Mountain.....₩ doz $4.50
Antrim Combination.....₩ doz $5.50
Hoosier.....₩ doz $13.50
Saratoga.....₩ doz $5.50

Pencils—
Faber's Carpenters'.....high list 50%
Faber's Round Gilt.....₩ gro $5.25
Dixon's Lead.....₩ gro $4.50
Dixon's Lumber.....₩ gro $6.75
Dixon's Carpenters'.....10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10@60&10&5%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.
Box—
Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W Co.....50&10&50&10&5%
Curtain—
Silvered Glass.....net
White Enamel.....net
Escutcheon,
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.
1¼ and under. Plain.....67&5@60&10%
1¼ and under, Galvanized.50+5@5 &1 %
1½ and over. Plain.....70&5@70&1 %
1½ and over, Galvanized..60&5@60&10%
Boiler Tubes,
Sizes up to 2¾ in. inclusive...57½@60%
Sizes 3 in. and larger.....60@55%
Casing.....55%
Inserted Joints Casing.....50%
Steel Boiler Tubes.....30%

Planes and Plane Irons—
Wood Planes—
Molding.....40&10%
Bench, First Quality.....50&10%
Bench, Second Quality.....55&1%
Bailey's (Stanley R. & L. Co.).....50&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.).....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10%
Steer's Iron Planes.....35@35&10%
Merrien hal. Iron Co.'s.....40@40&10%
Davis's Iron Planes.....40@40&10%
Birmingham Plane Co.....50@50&10%
Gage Tool Co.'s Self-Setting..20&10&10%
Chaplin's Iron Planes.....40@40&10%
Sargent's.....30&10@30&10&10%
Standard Tool Co.....50@50&5%
Plane Irons—
Butcher's.....$5.00@$5.25 to 2
Buck Bros.....30%
Auburn "Thistle."
Ohio.
Sandusky.....30&10%
S. & I. J. White.....25%
Stanley R. & L. Co.....50&10%

Plates.
Felton.....₩ ₺ 6¢@6½¢

Pliers and Nippers.
Button's Patent.....50@50&10%
Hall's No. 2, 6 in., $13.50; No. 4, 7 in. $21.00 ₩ doz.....40%
Humason & Beckley Mfg. Co..50@50&10%
Lindsay's Giant.....40%
Ges Pliers.....60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.....40%
Russell's Parallel.....25%
P. S. & W. Cast Steel.....50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters.....20%
Morrill's Parallel, ₩ doz, $12.00....30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 5%@50&5%
Cronk's Button Pattern.....50&10&60%
Cronk's Carrier Pliers.....60@60&5%

Plumbs and Levels—
Regular List.....75&10@75&10&5%
Stanley's Duplex.....20&10%
Stanley's Handy.....20&10%
Disston's.....50%
Pocket Levels.....70&10@70&10&10%
Davis Iron Levels.....30%
Davis' Inclinometers.....10&10%

Poachers.
Egg.
Buffalo Steam Egg Poachers, ₩ doz, No. 1, $6.00; No. 2, $9.00.....25%
Silver & Co., 6-Ring..₩ doz $4; 3-Ring $2

Pokes, Animal—
Bishop's I. X. L.....₩ doz $6.00
Bishop's O. K.....₩ doz $5.25
Bishop's Pioneer.....₩ doz $3.75
Bishop's American.....₩ doz $2.75
Eagle, Double Stale.....₩ doz $5.75
Eagle, Single Stale.....₩ doz $3.75
Buckeye, Single Stale.....₩ doz $2.75
Boiding.....₩ doz $1.00

Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₩ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₩ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₩ doz $48.00; Nickeled, $57.00: 3 Hands, Polished, ₩ doz $72.00; Nickeled, $84.00.....25%
J. P. Lovell's Police Goods.....25%

Polish, Metal.
Prestoline.....30%
Prestoline Paste.....33⅓%
Gaston's Silver Compound.....33⅓%

Polish, Stove.
Joseph Dixon's.....₩ gro $6.00, 10%
Gem.....₩ gro $4.50, 10%
Gold Medal.....₩ gro $6.00, 25%
Mirror.....₩ pro $6.00, —%
Lustro.....₩ gro $4.75
Ruby.....₩ gro $3.75
Rising Sun, 5 gro lots.....₩ gro $5.50
Dixon's Plumbago.....₩ ₺ 8¢
Boynton's Noon Day, ₩ gro.....13.00
Parlor Pride Stove Enamel..₩ gro
Yates' Liquid, 2 3 5 10 gal....
₩ gal ...$0.80 .70 .60 .50
Yates Standard Paste Polish, 10-₺ cans, ₩ ₺ 12½¢
Jet Black.....₩ gro $3.50
Japanese.....₩ gro $3.50
Fireside.....₩ gro $2.50
Diamond O. K. Enamel.....₩ gro $19.00
Bonnell's Liquid Stove Polish..₩ gro $9.00
Bonnell's Paste Stove Polish..₩ gro $6.00
Black Eagle Bensine Paste, 5 and 10 ₺ cans.....12½¢
Black Jack Water Paste, 5 and 10 ₺ cans.....12½¢
Nickel Plate Paste.....₩ gro $6.00
Crown Paste.....₩ gross, $7.20
Crown Paste, in 5 and 10 ₺ pails ₩ ₺ 12¢
Black Flag.....₩ gross, $7.20
Black Flag, 5 and 10 ₺ pails....₩ ₺ 12¢
Black Flag, liquid, in bottles. ₩ gro. $8.00
Diamond Rock Nickel Cleaner..₩ gro $10.20

Poppers, Corn—
Round or Square, 1 qt..₩ gr $10.00@10.50
Round or Square, 1½ qt..₩ gr $15@15.50
Round or Square, 2 qt..₩ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.
Glue—
Tinned.....40&10@40&10&5%
Enameled.....40&10@40&10&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

Powder.
In Canisters—
Fine Sporting, 1 ₺ each.....$0.90
Duck, 1 ₺ each.....60
Duck, ½ ₺ each.....40
Rifle, 1 ₺ each.....30
Rifle, ½ ₺ each.....18
In Kegs—
Rifle, 25-₺ kegs.....$5.50
Rifle, 12½-₺ kegs.....3 00
Rifle, 6¼-₺ kegs.....1.65
Duck, 12½-₺ kegs.....5.75
Duck, 6¼-₺ kegs.....3.00
Trap, 25-₺ kegs.....6.50
Trap, 12½-₺ kegs.....3.50
Trap, 6¼-₺ kegs.....1.90

Presses.
Fruit and Jelly—
Enterprise Mfg. Co.....20&10&30%
Henis.....₩ doz $3.50
Shepard's Queen City.....40%
Silver & Co.....₩ doz $2.75

Pruning Hooks and Shears.—See Shears.

Pullers.
Nail.
Scranton.....₩ doz $13.00, 33⅓%
Curtiss Hammer.....₩ doz $9.00
Giant, No. 1.....₩ doz. $13.00, 10%
Giant, No. 2.....₩ doz, $15.00, 10%
Pelican.....₩ doz. $9.00, 25%
Eclipse.....each $2.00 net
Economy.....₩ doz $6.00

Pulleys—
Hot House, Awning, &c.....60&10%
Japanned Screw.....60&10%
Brass Screw.....60&10%
Japanned Side.....66⅔&10%
Japanned Clothes Line.....50&10%
Empire Sash Pulley.....50@60%
Moore's Sash, Anti-Friction.....50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50.....50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70.....50%
Hay Fork, "F" Common and Pat. Bushed.....20%
Hay Fork, Tarbox Pat. Iron.....20%
Hay Fork, Reed's Self-Lubricating...60%
Shade Rack.....45%
Tackle Blocks.....See Blocks
Moore's Anti-Friction 5 in. Wheel, ₩ doz $12.00.....40%

Pumps—
Cistern, Best Makers.....60@60&10%
Pitcher Spout, Best Makers.....67½@70%
Pitcher Spout, Cheaper G'ds..75@75&10%

Punches—
Saddlers' or Drive, good, ₩ doz...60@65¢
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co's Springfield Socket.50&5%
Spring, good quality....₩ doz $2.50@2.60
Spring, Leach's Pat.....15%
Bemis & Call Co.'s Spring and Check..40%
Solid Tinners', P. S. & W. Co., ₩ doz $1.44, 55%
Tin'rs' Hollow Punches P. S. & W. Co. 20&2%
Rice Hand punches.....15%
Avery's Revolving.....40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—
Sliding Door. Wr't Brass, ₩ ₺ 35¢.....15%
Sliding Door, Bronzed Wr't Iron..₩ ft. 7¢
Sliding Door, Iron, Painted, ₩ foot 4¢, 40%
Barn Door Light. In. ½ ¾ ¼
Per 100 feet $2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 set	$2.15	2.70	3.35 net
Terry's Steel Rail, ₩ foot			4½¢
Victor Track Rail, 7¢ ₩ foot			50&5%
Carrier, double braced, Steel Rail, ₩ foot			4@4½¢
Moore's Wrought Iron			6¾¢
Moody Steel Rail			45%

Rakes—
Cast Steel, Association goods...65%@70%
Cast Steel, outside g'ds. 60&10&10@70&5%
Malleable.....70@70&5%
Gibbs Lawn Rake.....₩ doz $4.90
Canton Lawn Rake.....₩ doz $3.75
Favorite Lawn Rake.....₩ doz $4.40
Ft. Madison Prize Bow Brace and Peerless.....60%
Fort Madison Steel Tooth Lawn Rake, $6.00.....25%

Razors—
J. R. Torrey Razor Co.....30%
Wostenholme and Butcher, $10 to $...10%
Jordan's AAAI, new list.....net
Jordan's Old Faithful, new list.....net
Galvanic.....₩ doz $15.00
Electric Cultery Co.....Net

Razor Strops—See Strops, Razor.

Rings and Ringers.
Bull Rings—
Union Nut Co.....55%
Sargent's.....60%&10@70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70&10%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%
Hog—
Top of the Hill Ringers.....₩ doz $2.00
Top of the Hill Rings.....₩ doz $1.32
Hill's Improved Ringers.....₩ doz $1.32
Hill's Gold Style Ringers.....₩ doz $1.12½
Hill's Tongs.....₩ doz $3.00
Hill's Rings.....₩ doz bxs $1.00
Perfect Rings.....₩ doz bxs $1.50
Perfect Ringers.....₩ doz $2.15@$2.32
Blair's Hog Ringers.....₩ doz $2.00
Blair's Hog Rings.....₩ doz 90¢@$1.08
Champion Ringers.....₩ doz $2.08
Champion Rings, Double.....₩ doz $2.32
Brown's Ringers.....₩ doz $2.00
Brown's Rings.....₩ doz $1.15@1.32
Electric Hog Rings...₩ doz boxes $1.50
Electric Hog Ringers.....₩ doz $2.00
Major Rings.....₩ oz $1.25
Major Ringers.....₩ doz $2.00

Rivets and Burrs—
Iron, list Nov. 17, '87.....40%
Copper.....60&10%
Coppered Iron, Bettina Brand.....40%

Rivet Sets—See Sets.

Rods—
Stair, Brass.....25&2%
Stair, Black Walnut.....₩ doz 40¢

Rollers—
Barn Door, Sargent's list.....60&10&10%
Acme Moore's Anti-Friction.....55%
Union Barn Door Co.'s New Thompson Mfg. Co.'s Lawn Rollers..30%

Rope.
Manila, 7-16 in. diam. and larger ₩ ₺ 12½¢
Manila.....½ in. ₩ ₺ 12½¢
Manila.....¼ and 5-16 in. ₩ ₺ 13½¢
Manila Tarred Rope.....₩ ₺ 11½¢
Manila, Hay Rope.....₺ 12½¢
Sisal.....7-16 inch and larger ₩ ₺ 10½¢
Sisal.....⅜ in. ₩ ₺ 10½¢
Sisal.....¼ and 5-16 in. ₩ ₺ 11½¢
Sisal, Hay Rope.....₩ ₺ 10½¢
Sisal, Tarred Rope.....₩ ₺ 9½¢
Sisal, Medium Lath Yarn.....₩ ₺ 9½¢
New Zealand...½ in. & larger ₩ ₺ 8½¢
New Zealand.....⅜ inch, ₩ ₺ 9½¢
New Zealand, ¼ and 5-16 inch, ₩ ₺ 9½¢
New Zealand, Hay Rope.....₩ ₺ 8½¢
New Zealand, Tarred Rope....₩ ₺ 8½¢
Note.—Manufacturers' prices on above 1¢ ₩ ₺ less, f. o. b. factory—less 1½ % for cash
Cotton Rope.....₩ ₺ 13½@16¢
Jute Rope.....₩ ₺ 6½@7¢
Wire—
List February, 1892.
All kinds.....45%

Rules—
Boxwood.....80&10&10%
Ivory.....50@50&10%
Starrett's Rules and Straight Edges, Steel.....25&10%

Sad Irons—See Irons, Sad.
Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights See Weights, Sash.

Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—The following prices are often cut by jobbers.
Disston's Circular.....45@45&5%
Disston's Cross Cuts.....45@45&5%
Disston's Hand.....20@20&5%
Woodrough & McFarlin.
Hand, Panel and Rip.....25@25&5%
Narrow Champion Cross Cuts with Handles, ₩ foot.....18@20¢
Champion Thin Back Cross Cuts, ₩ foot.....20@23¢
Champion Extra Thin Back Cross Cuts, ₩ foot.....29@31¢
One Man Champion Cross Cuts, ₩ foot.....37@40
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip.....3@3.5%
Narrow Champion Cross Cuts with Handles, ₩ foot.....18@20¢
Champion Thin Back Cross Cuts, ₩ foot.....36@38¢
Champion Extra Thin Back Cross Cuts, ₩ foot.....29@31¢
One Man Champion Cross Cuts, ₩ ft..

Atkins' Circular Shingle & Heading..50%
Atkins' Silver Steel Diamond X Cuts
₩ foot 70c
Atkins' Special Steel Dexter X Cuts
₩ foot 50c
Atkins' Special Steel Diamond X Cuts
₩ foot 32c
Atkins' Champion and Electric Tooth X Cuts.....₩ foot 30c
Atkins' Hollow Back X Cuts. .₩ foot 20c
Atkins' Mulay, Mill and Drag.....40%
Atkins' One-Man Saw, with handles, ₩ foot 40c
Peace Circular and Mill.....45@45&5%
Peace Hand Panel and Rip....25@25&5%
Peace Cross Cuts.....45@45&5%
Richardson's Circular and Mill.45@45&5%
Richardson's X Cuts.....45@45&5%
Richardson's Hand, &c.....25@25&5%
C. E. Jennings & Co., Hand, Panel and Rip.....25@25&10%

Hack Saws—
Grimm's, complete.....40&10@50%
Grimm's Hack Saw, Blades....40&10@50%
Star Hack Saws and Blades.....25%
Eureka and Crescent.....25%

Scroll—
Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cab. Makers' $15.25%
Barnes' Scroll Saw Blades.....35%

Saw Frames—See Frames, Saw.
Saw Sets—See Sets, Saw.
Saw Tools—See Tools, Saw.

Scales—
Hatch, Counter, No. 171, good quality, ₩ doz $21.00
Hatch, Tea, No. 161....₩ doz $6.75@7.00
Union Platform, Plain.....$2.10@2.30
Union Platform, Striped.....$2.40@2.50
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Family Turnbulls.....30@30&10%
Richie Bros.' Platform.....10%
Scale Beams—See Beams, Scale
Scissors, Fluting.....45%

Scrapers—
Adjustable Box Scraper (S. R. & L. Co.) $6.50.....30&10%
Box, 1 Handle.....₩ doz $4.00. 10%
Box, 2 Handle.....₩ doz $6.00. 10%
Defiance Box and Ship.....20&10%
Foot.....50&10@60%
Ship, Common.....₩ doz $3.50 net
Ship, R. I. Tool Co.....10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.
Bench and Hand—
Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....₩ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood .....25&10@25&10&5%
Hand, Grand Rapids, list.....75%
Lag, Blunt Point, list Jan. 1, 1890.75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890.....75@75&10%
Bed.....25&5%
Hand Rail, Sargent's.....65&5&10%
Hand Rail, H. & F Mfg. Co..70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P. S. & W.....35%
Jack Screws Sargent..60&10@60&10&5%
Jack Screws Stearns'.....40@40&10%

Cork—
Humason & Beckley Mfg. Co..40&10@50%
Williamson's.....33⅓@33⅓&5%
Howe Bros & Hulbert..35%

Machine—
Flat Head, Iron.....55%
Round Head, Iron 50%

Wood—
List January 1, 1891.
Flat Head Iron.....70 % } Extra 10 & 10&10% of- ten given.
Round Head Iron.....65 %
Flat Head Brass.....70 %
Round Head Brass.....65 %
Flat Head Bronze.....70 %
Round Head Bronze.....65 %
Rogers' Drive Screws.....82½%

Scroll Saws—See Saws, Scroll.

Scythes.
Grain.....40&5@40&10%
Grass.....40&10@50%

Scythe Snaths—See Snaths, Scythe

Sets.
Awl and Tool.
Aiken's Sets, Awls and Tools, No. 20, ₩ doz $10.00 .....55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9. .....25&25&10%
Miller's Falls Adj. Tool Hdls. Nos. 1, $12. 2, $18.....25%
Henry's Combination Haft...₩ doz $6.50
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $3.50 .....30&10%
Common Brad Sets, No. 42, $10.50; No. 43, $12.50. .70&10&5%

Nail—
Square.....₩ gr., $4 00@$4.25
Round.....₩ gr. $3.25
Buck Bros.....27½%
Cannon's Diamond Point...₩ gr., $12, 20%

Rivet,
Regular list.....50&10%

Saw—
Stillman's Genuine...₩ doz $5.00@7.75, 40&5%
Stillman's Pattern, Hand, ₩ doz $3.25; Cross Cut, 5.25.....45@50%
Common Lever .....₩ doz $2.00, 45@50%
Morrill's No. 1, $12 00 .....40@40&5%
No 11, $15.00....40&10@40&20%
Nos. 8 and 4, $18 00.....40&5%
No. 5, $24.00 .....40&5%
Leach's. No. 0, $8 00; No. 1, $15, 10@20%
Nash's .....80&10@20&10&10
Hammer, Hotchkiss.....$5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer.....30&5%
Bemis & Call Co.'s Plate.....10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine.....$18.00, 50&10@60%
Aiken's Imitation.....$7.00, 55&5%
Hart's Pat. Lever.....20%
Disston's Star. 25%
Leopold.....40&10@50%
Atkin's Lever... .....₩ doz No. 1, $6.00
Atkin's Criterion.....₩ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00.....40&10%
Avery's Saw Set and Punch.....50%
Chieftain Co.'s Superior.....₩ doz $7.00
Chieftain Co.'s Royal.....₩ doz $7.50
Crescent.....₩ doz $3.00
Lloyd's Acme.....₩ doz $15.00, 40&10%

Sharpeners, Knife.
arkins.
Applewood Handles....₩ doz $6.00, 40%
Rosewood or Cocobo a. ₩ doz $900 40%

Shaves, Spoke
Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....30&10%
Cincinnati .....25&10%
Goodell's, ₩ doz $9.00.....25%

Shears—
American (Cast) Iron...75&10@75&10&5%
Barnard's Lamp Trimmers...₩ doz $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears 33⅓%
Cast Steel Trimmers:
First quality .....80@80&10%
Second quality.....80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears 10%
Clipper.....10&10%
Victor Cast Shears.....75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Davenport Cutlery Co.....60@60&10%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list. 60%
Galvanic, 3¼ to 9 in, ₩ doz, $1.00 ₩ inch
Electric Cultery Co.....Net

Pruning Shears and Hooks.
Disston's Combined Pruning Hook and Saw.....₩ doz $18.00, 20&10%
Disston's Pruning Hook, ₩ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools.....40%
Pruning Shears, Henry's Pat, ₩ doz $3.75@4.00
Henry's Pruning Shears, ₩ doz $4.25@4.50
Wheeler, M. & C. Co.'s Combination, ₩ doz $12.00, 20%
Dunlap's Saw and Chisel, ₩ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co.....60%

Tinners', &c.—
Shears and Snips (P. S. & W.).....20@25%
Snips, J. Mallinson & Co.....33⅓%

Sheaves—
Sliding Door—
M. W. Co., list July, 1888..50&10@60&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list..... .....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%

Sliding Shutter—
R. & E. list Dec. 18, 1885 .....60&10&2%
Sargent's list.....60&10%
Reading list .....60&10&10%

Shells—
First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Rise.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Seibold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%

Shells Loaded—
Standard List, July 19, 1890..... 40&10&10@40&10&10&5%

Ship Tools—
L. & I. J. White.....20&5%

Shoes, Horse, Mule, &c.—
Horse—
Burden's, Perkins', Phoenix and Bryden's Boss, at factory. $4.00
Bryden's Frog Pressure, at factory.$5.00
Mule—
Add $1 ₩ keg to above prices.

Ox, Wrought—
Ton lots.....₩ ℔ 9¢
1000 ℔ lots.....₩ ℔ 9½¢
500 ℔ lots.....₩ ℔ 10¢

Shot—

	Ton lots	Small lots
Drop, up to B, 25-℔ bag	$1.40	$1.45
Drop, up to B, 5-℔ bag	.35	.35
Drop, B and larger, 25-℔ bag	1.65	1.70
Drop, B and larger 5-℔ bag	.40	.40
Buck and Chilled, 25-℔ bag	1.65	1.70
Buck and Chilled, 5-℔ bag	.40	.40
Dust Shot, 25-℔ bag	2.00	2.00
Dust Shot, 5-℔ bag	.45	.45

Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S. .....60@60&10%
Griffith's Solid C. S. R. R. Goods.....20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
H. M. Myers Co.....30 %
Payne Pettebone & Son.....33⅓&5%
Remington's (Lowman's Pat.)30&10@40%
Rowland's, Black Iron.....50&10%
Rowland's Steel .....60&5@60&10%
Terre Haute Shovel and Tool Co.....25%

Shovels and Tongs—
Iron Head.....50&10@60&10&5%
Brass Head.....60&10&10%

Sieves—
Mann's Tin Rim.....50&25%
Buffalo Metallic, S. S. & Co.....50&25%
Shaker (Barler's Pat.) Flour Sifters.... ₩ doz $2.00; ₩ gr $21.60
Electric.....₩ gr $21.00
A. & W. Sifters.....₩ doz 2.00
Hunter's.....₩ doz $2.00

Sieves, Wooden Rim—

	Iron.	Plated
Mesh 18, Nested, ₩ doz..	80¢	$1.00
Mesh 20, Nested, ₩ doz..	95¢	1.10
Mesh 24, Nested, ₩ doz..	$1.15	1.25

Skeins, Thimble—
Western list.....75&5@75&10%
Columbus Wrt. Steel..Special net prices
Coldbrookdale Iron Co.....60%
Seneca Falls Pattern.....60%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Slates—
School, by case.....50&10@50&10&10%

Snaps, Harness, &c.—
Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&10&5&2%
Covert, New Patent.....50&10&5&2%
Covert, New R. E.....60&10&5&2%
Covered Spring .....60&10&10%
E. Covert's Triumph.....33⅓%

Snaths, Scythe.
List.....50@50&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.
Standard Fiberware—
Cuspidors, 8¼-inch, ₩ dos., No. 5, $8; No. 5X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—
Tinned Iron—
Basting, Cen. Stamp. Co.'s list....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).
Meriden Brit. Co.. Rogers.....40&15%
C. Rogers & Bros.....40&15%
Rogers & Bro.....40&15%
Reed & Barton.....40@40&5%
Wm. Rogers Mfg. Co.....40, 15&5%
Simpson, Hall, Miller & Co.....40, 15&5%
Holmes & Edwards Silver Co....40, 15&5%
L. Boardman & Son.....50&12½%

Miscellaneous.
Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 30 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50&5%
No. 40 Nickel Silver.....50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal.....50, 10&5%
18% Rogers' German Silver.....60&5%
22% Rogers' Nickel Silver. .....50&5%
German Silver.....50@50&5
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Britannia.....60@60&5%
Boardman's N'ck'l Silver, list July 1, 1891 .....60&7½&5%
Boardman's Britannia Spoons, case lots.....60&5% cash

Springs—
Door.—
Torrey's Rod, 39 in.....₩ doz $1.20@1.25
Gray's, ₩ gr., $20.00.....25%
Bee Rod ₩ gr., $20.00.....20@25%
Warner's No. 1, ₩ doz, $2.50; No. 2, $3.30.....50&50&5%
Gem (Coil), list April 19, 1886... 10@15%
Star (Coil), list April 19, 1886. .20@20&5%
Victor (Coil).....60&10@60&10&5%
Champion (Coil).....60&10@60&10&10%
Cowell's....No. 1, ₩ doz, $18.00; No. 2, $15.00.....50@50&10%
Rubber, complete, ₩ doz, $4.50...55&10%
Hercules.....50@50&10%

Carriage, Wagon, &c.—
Elliptic, Concord, Platform and Half Scroll.....60&10&10%
Cliff's Bolster Springs.....25%

Squares—
Steel and Iron..... } .80&10@80&10&10%
Nickel-Plated..... }
Try Square and T Bevels.....60&10&10%
Disston's Try Square and T Bevels.....50%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares, 25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor 50%

Squeezers.
Fodder.—
Blair's.....₩ doz $2.00
Blair's "Climax".....₩ doz $1.25

Lemon—
Porcelain Lined, No. 1....₩ doz $6.00, 25&20%
Wood, No. 2.....₩ doz $3.00, 35%
Wood, Common.....₩ doz $1.70@1.75
Dunlap's Improved .....₩ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₩ doz.....25&10%
Jennings' Star.....₩ doz $2.50
The Boss.....₩ doz $2.50
Dean's..Nos. 1, ₩ doz $6.50; 2, $8.35; 3, $1.90; Queen, $2.50
Little Giant.....50@50&5%
King.....40&5%
Hotchkiss Straight Flash...₩ doz $12.00
Silver & Co., Glass.....₩ gro. $9.00
Manny Lemon Juice Extractor: Standard.....₩ doz $0.75@$1.00
Improved.....₩ doz $2.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.
Blind—
Barbed, ½ in. and larger.....₩ ℔ 7@7½¢
Barbed, ¼ in. .....₩ ℔ 8@8½¢
Fence staples, Galvanized. } Same price as B'rb Wire. See Trd. Rep.
Fence Staples, Plain..... }
Steelyards.....40&10@50%

Stocks and Dies—
Blacksmith's
Waterford Goods.....33⅓@40%
Butterfield's Goods... .. 33⅓@40%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates....33⅓&5&40%
Reversible Ratchet.....30
Gardner.....25%

Stops, Bench.
Morrill's.....₩ doz $9. 50%
Hotchkiss's.....₩ doz $5 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's.....₩ doz $3.....10%
Cincinnati .....25&10%
Terrell's Nos. 1 and 2, ₩ doz., $3; No. 3, $3.60 .....30%

Stone—
Scythe Stones.
Pike Mfg Co., Ill Ap 11, 18[illegible] 33⅓%
Oil Stones, &c.
Pike Mfg Co.:

	Price ₩ ℔
Hindostan No 1	8¢
Sand Stone	5¢
Washita Stone, Extra	8¢
Washita Stone, No. 1	6¢
Washita Stone, No. 2	30¢
Washita Slips, Extra	80¢
Washita Slips, No. 1	70¢
Arkansas Stone, No 1, 3 to 5 in	$2.80
Arkansas Stone, No. 1, 5½ to 8 in	$5.50
Turkey Oil Stone, 4 to 8 in	80¢
Turkey Slips.....	$2 60
Lake Superior, Chase.....	₩ ℔ 13¢
Lake Superior Slips, Chase... ..	₩ ℔ 20¢

Dis. 40 & 40&10 %

Stove Polish—See Polish, Stove.

Stretchers, Carpet.
Cast Steel, Polished.....₩ doz $3.2[illegible]
Cast Iron, Steel Points.....₩ doz 80¢
Socket.....₩ doz $1.7[illegible]
Gullard's.....25@25&10%

Strops, Razor—
Genuine Emerson.....60@60&5%
Imitation " ....₩ doz $2.00, 20&10&5%
Torrey's 30%
Badger's Belt and Com.....₩ doz $2.00
Lamont Combination.....₩ doz $4.00
Jordan's Pat Padded, list Nov. 1, '92..60%
Electric Cultery Co .....Net

Stuffers or Fillers, Sausage—
Miles' "Challenge," ₩ doz $20, 50@50&5%
Perry .....₩ doz, No. 1, $15.00; No. 0, $21.00.....50&5@50&10%
Draw Cut No. 4, each $30.00.....30%
Enterprise Mfg. Co.....20&10@30%
Silver's.....40&10%

Sweepers, Carpet and Lawn—
Carpet.
Bissell No. 0.....₩ doz $17.00
Bissell No. 8.....₩ doz $20.00
Bissell, Grand.....₩ doz $36.00
Standard.....₩ doz $24 00
Domestic .....₩ doz $21.00
Domestic, No. 2.....₩ doz $22.00
Grand Rapids.....₩ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₩ doz $15.00
Improved Parlor Queen, Nickeled..₩ doz $27.00
Japanned.....₩ doz $24.00
Excelsior .....₩ doz $22.00
Garland .....₩ doz $18.00
Parlor Queen.....₩ doz $24.00
Housewife's Delight.....₩ doz $15.00
Queen.....₩ doz $16.00
Queen, with band.....₩ doz $18.00
King .....₩ doz $30.00
Weed, Improved.....₩ doz $18.00
Hub.....₩ doz $16.00
Cog-Wheel.....₩ doz $16.00
Easy .....₩ doz $22.00
Monarch.....₩ doz $22.00
Goshen.....₩ doz $21.00
Ladies' Friend..... .....₩ doz $15.00
Advance ....₩ doz $18.00
Supreme .....₩ doz $22.00

Lawn.
Thompson Mfg. Co.....30%

Tacks, Brads, &c.—

List October 19, 1889. Old established straight Weights Short Weight goods are sold at lower prices.

Carpet Tacks—
American, Blued..... 72½%
American, Tin'd and Cop'd ..70%
Steel, Bright and Blued... 72½%
Steel, Tinned and Coppered 55%
Swedes Iron, Blued..... 75%
Swedes Iron, Tinned..... 78%
American Iron Tacks..... 7½%
Swedes Iron Tacks—
S. S., Blued..... 71%
S. S., Tinned..... 74%
Lanc., Blued..... 60%
Lanc., Tinned..... 63½%
Gimp and Lace Tacks—
S. S., Blued 67½%
S. S., Tinned..... 71%
Lanc., Blued..... 60%
Lanc., Tinned..... 63½%
Basket and Trimmers' Tacks—
Lanc 61½%
S. S. 69½%
Hungarian Nails.....63½%
Common and Patent Brads....6 %
Leathered Tacks.....30%
Brush Tacks.....63½%
Looking Glass Tacks.....35%
Picture-Frame Points.....42½%
Finishing Nails.....63½%
Trunk and Clout Nails—
Black.....67½%
Tinned or Coppered..... 71%
Basket Nails 61½%
Chair Nails.....56½%
Cigar-Box Nails 53%
Tin Capped Nails.....50%

Miscellaneous—
Double Point .....90@90&10%
Wire Carpet Nails .....60&10%
Plymouth Rock Steel Carpet Tacks..25%
Wire Brads and Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list .....50&10%

Extra discount 25&2%.

Tapes, Measuring—
American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—
Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale—See Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Tinners', &c

Tinware—
Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&25%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.
Coopers'—
Bradley's.....30%
Barton's.....30@30&5%
L. & I. J. White.....30&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....20%

Lumber.
Bing Peavies, "Blue Line"...₩ dos $20.00
Bing Peavies, Common.....₩ dos $18.00
Steel Socket Peavies.....₩ dos $21.00
Mall. Iron Socket Peavies....₩ dos $19.00
Cant Hooks, "Blue Line"...₩ dos $16.00
Cant Hooks, Common Finish..₩dos$14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ dos $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ dos $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ dos $12.00
Hand Spikes....₩ dos 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ dos., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ dos, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ dos, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ dos, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ dos $18.00

Saw.
Atkins' Perfection.....₩ dos $12.00
Atkins' Excelsior.....₩ dos $6.00
Atkins' Giant.....₩ dos $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—
Game—
Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%
Mouse and Rat—
Mouse Wood, Choker, ₩ dos holes, 9@10¢
Mouse, Round Wire.....₩ dos $1.50 10%
Mouse, Cage, Wire.....₩ dos $2.50, 10%
Mouse, Catch-'em-alive....₩ ds $2.50' 15¢
Mouse, Bonanza.....₩dos $0.90@$1.00
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ dos., 75¢; in full cases, ₩ dos 60@65¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Triers—
Butter and cheese.....25%

Trimmers, Spoke.
Bonney's.....₩ dos $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ dos.....55&10%
Douglas'.....₩ dos $9.00, 20%
Cincinnati.....20%

Trowels—
Lothrop's Brick and Plastering.....20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering..25@25&5%
Peace's Plastering.....25@25&5%
Clement & Maynard's.....20@30&5%
Rose's Brick.....40@40%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%
Cleves' Angle Trowel. ₩ gro. No 1, $36.; No. 2, $30.; No. 3, $15. net @ 10%

Trucks, Warehouse, &c.
R. & L. Block Co 's list, '92.....40%
Thompson Mfg. Co.....25%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls	25¢	31¢
No. 12, ¼ and ⅛ ℔ Balls	22¢	30¢
No. 15, ¼ and ⅛ ℔ Balls	20¢	29¢
No. 24, ¼ and ⅛ ℔ Balls	20¢	29¢
No. 36, ¼ and ⅛ ℔ Balls	15¢	28¢
No. 264, Mattrass, ¼ and ⅛ ℔ Balls	52@54¢	
Chalk Line, Cotton, ⅛ ℔ Balls	.25¢	
Mason Line, Linen, ⅛ ℔ Balls	.55¢	
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine)	.15¼¢	
2-Ply Hemp, 1 ℔ Balls	.16¢@16¼¢	
3-Ply Hemp, 1½ ℔ Balls	.15¢@15¼¢	
Cotton Wrapping, 5 Balls to ℔	.15¢@16¢	
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls	.10¢	
Wool	.6¼¢@6¾¢	
Paper	.13¢@14¢	
Cotton Mops, 6, 9, 12 and 15 ℔ to doz.	.18¢	

Vises—
Solid Box.....50&10@50&10&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Massey Quick Action.....20 @ 25 %
Saw Filers—
Bonney's, Nos. 2 & 3, $15.00.....45&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....₩ dos $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Miscellaneous.
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40 %

Wads—Price per M.

U.M.C.&W.R.A.—B. E., 11 up...	63¢
U.M.C.&W.R.A.—B. E., 9&10..	82¢
U.M.C.&W.R.A.—B. E., 8.....	96¢
U.M.C.& W.R.A.—B. E., 7.....	$1.10
U.M.C.&W.R.A.—P. E., 11 up..	1.15
U.M.C.&W.R.A.—P. E., 9&10..	1.50
U.M.C.&W.R.A.—P. E., 8.....	1.70
U.M.C.&W.R.A.—P. E., 7.....	1.80
Eley's B. E., 11 up.....	$1.70@$1.75
Eley's P. E., 11@10.....	3.00@ 3.25

Dis. 30&2½

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.
Cast Iron, Hollow—
Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled-Ware—
Maslin Kettles.....75@75&5%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and S'pans.....60@60&5%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%
Enameled—
Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%
Kettles—
Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢		75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.	$2.00	$2.35
Wash-Basins, 12 in.	2.25	2.75
Keelers, 11¼ in.		4.00
Cuspidors		3.00
Spittoons, "Daisy," 8 in.	4.00	4.50
Peck Measure	4.00	
Half-peck Measure	3.50	

See also Pails.
Indurated Fiber—25%
Spittoons, No. 2, ₩ dos.....$3.40
Basins, Ringed, ₩ dos., No. 2.....$3.00
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$2.90
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$1.70
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set.....$1.60
See also *Pails.*
Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.
Reed & Barton.....
Meriden Britannia Co.....
Simpson, Hall, Miller & Co.....
Rogers & Brother.....
Hartford Silver Plate Co.....
William Rogers Mfg. Co.....
} 40&5%
} 40&5&5%

Washers—

Size hole	5-16	⅜	½	⅝ to 1¾
Washers	6	5	3.50¢	3

In lots less than 200 ℔, ₩ ℔, add ½¢, 5-℔ boxes 1¢ to list.

Wedges—
Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 3½¢

Weights, Sash—
Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.
8 in., $2.25; 10 in., $3.70; 12 in., $5.25

Wire and Wire Goods—
Iron—
Market,
Br. & Ann., Nos. 0 to 18.....75&10@80%
Cop'd, Nos. 0 to 18.....75&5@75&10%
Galv., Nos. 0 to 15.....70@70&10
Tin'd, Tin'd list Nos. 0 to 15.70@70&10%
Stone,
Br. and Ann'd, Nos. 16 to 18.....80%
Bright and Ann'd, Nos. 19 to 26..80&5%
Br. and Ann'd, Nos. 27 to 36...82½&5%
Tinned.....
Tinned Broom Wire 18 to 21, ₩ ℔...45¢
Galvanized Fence, Nos. 8 and 9..70&10%
Brass, list Jan. 18, 1884.....25@33⅓%
Copper, list Jan. 18, 1884.....33⅓@40%
Annealed Wire on Spools.....60%
Malin's Steel and Tin'd on Spools.....60%
Malin's Brass and Cop. on Spools.....50%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass.....50%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to 2, 30%
Steel Music Wire, 12 to 30...60@70¢ ₩ ℔
Wire Clothes Lines, see Lines.
Wire Picture Cord see cord.

Bright Wire Goods—
Standard list.....35%

Wire Cloth and Netting.
Painted Screen Cloth, good quality ₩ 100 sq. ft., $1.40
Galvanized Wire Netting.....70&10@75%

Wire, Barb.—Prices unsettled. See Trade Report.

Wire Rope—See Rope, Wire.

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....50&5%
Coes' "Mechanics'".....50&10&5%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard...70&10%
P. S. & W. Agricultural.....
Girard Agricultural.....
Lamson & Sessions' Agric'l..
} 75&10@
} 75&10&10%
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....35%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ dos $4.00, 40%
Webster's Pat. Combination.....35%
Boardman's.....30&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....30&10%
Acme, Bright.....50&5%
Acme, Nickeled.....40&5%
Hercules.....70@70&5%
Walker's.....60&5%
Diamond Steel.....55&5%
Cincinnati Brace Wrenches.....35&10%
Tafts' Vise Wrench.....55&10&5%

Wringers, Clothes—
Am. Wringer Co.'s list, July 15, 91..2% cash
Colby Wringer Co., list Sept. 1, '91.2% cash
Lovell Mfg. Co., list Jan 1, 1892.2 % cash
Peerless Mfg. Co., list Feb., 1892..2% cash

Wrought Goods—
Staples, Hooks, &c., list March 17, 1892 30&25%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	42	@	..
Linseed, City, boiled	45	@	..
Linseed, Western, raw	41	@	..
Lard, City, Extra Winter..	57	@	58
Lard, City, Prime	58	@	59
Lard, City, Extra No. 1	44	@	45
Lard, City, No. 1	40	@	42
Lard, Western, prime	57	@	58
Cotton-seed, Crude, prime,	29	@	29½
Cotton-seed, Crude, off grades	26½@		28
Cotton-seed, Summer Yellow, prime	32½@		33
Cotton-seed, Summer Yellow, off grades	30	@	31
Sperm, Crude	68	@	..
Sperm, Natural Spring	67	@	70
Sperm, Bleached Spring	72	@	75
Sperm, Natural Winter	73	@	76
Sperm, Bleached Winter	78	@	81
Whale, Crude	..	@	45
Whale, Natural Winter	54	@	55
Whale, Bleached Winter	57	@	58
Whale, Extra Bleached	59	@	60
Sea Elephant, Bleached Winter	62	@	63
Menhaden, Crude, Sound	30	@	31
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed	37	@	..
Menhaden, Bleached W'ter	38	@	..
Menhaden, Extra Bleached	40	@	42
Tallow, City, prime	44	@	45
Tallow, Western, prime	42½@		43
Cocoanut, Ceylon	5¼@		5½
Cocoanut, Cochin	6	@	6¼
Cod, Domestic	38	@	40
Cod, Foreign	43	@	45
Red Elaine	34	@	36
Red Saponified.....₩ ℔	4½@		5
Bank.....per gal	35	@	36
Straits	36	@	37
Olive, Italian, bbls	60	@	62
Neatsfoot, prime	50	@	60
Palm, prime, Lagos....₩ ℔	6	@	6¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	7	@	7½
Black, 29 gravity, 15 cold test	7½@		8
Black, 29 gravity summer	6	@	6½
Cylinder light filtered.	14	@	16
Cylinder, dark, filtered	10	@	13
Paraffine, 23½ @ 24 gravity	11½@		12
Paraffine, 25 gravity	10½@		11
Paraffine, 28 gravity	8	@	8½
Paraffine, red, 23½@24 gr'ty	10½@		11

Paints and Colors.

Barytes, Foreign, ₩ ton.	$22.00	@	$24.00
Barytes, Amer. floated	20.00	@	25.00
Barytes, Amer. No. 1	15.00	@	17.00
Barytes, Amer. No. 2	13.00	@	16.00
Barytes, Amer., No. 3	11.00	@	12.00
Blue, Celestial.....₩ ℔	6	@	8
Blue, Chinese	40	@	50
Blue Prussian	25	@	40
Blue, Ultramarine	8	@	25
Brown, Spanish	½@		1
Brown, Vandyke, Amer.	3	@	3½
Brown, Vandyke, English	6	@	8
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels	3.20	@	.
Carmine, No. 40, in ounce bottles	4.20	@	
Chalk, in bulk	₩ ton.		2.00
Chalk, in bbls.	₩ 100 ℔.	33 @	40
China Clay, English	₩ ton.	13.00 @	18.00
Cobalt Oxide, prep'd		9.00 @	11.00
Cobalt Oxide, black, lots 100 ℔.		2.50 @	....
Cobalt, Oxide, black less 100 ℔.		2.65 @	2.90
Green, Paris, in bulk		13 @	15½
Green Paris, 170 @ 175 ℔ kegs		14 @	16
Green, Paris, small pack.		15½@	22
Green, Chrome, ordinary		6 @	12
Green, Chrome, pure		22 @	25
Lead, Eng., B.B. white		3½@	10
Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔		7¼ @	7¾
Kegs, lots 500 ℔ to 5 tons		6¾ @	7
Kegs, lots 5 tons to 12 tons		6¾ @	6¾
Kegs, lots 12 tons and over		6¼ @	6¾
Lead White in oil 25 ℔ tin pails add to keg price		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price		@	¼
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2½
Lead, Red, bbls. and ½ bbls		6¼ @	7½
Lead Red, kegs		6¼ @	7¾
Litharge, kegs		6¼ @	7¼
Litharge, bbls. and ½ bbls		6¼ @	7¼

Terms, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle	1.35	@	1¾
Ocher, French Washed		1½@	2¼
Ocher, German Washed		1½@	3
Ocher, American		½@	1¾
Orange Mineral, English		8½@	9
Orange Mineral, French	10	@	10½
Orange Mineral, German		8½@	09
Orange Mineral, American		8½@	8¾
Paris White, English Cliffstone	1.00	@	1.15
Paris White, American	70	@	75
Red, Indian, English		5½@	7
Red, Indian, American		2 @	6½
Red, Turkey		9 @	14
Red, Tuscan		9 @	11
Red, Venetian, American ₩ 100 ℔.	1.00	@	1.10
Red, Venetian, English	1.20	@	1.35
Sienna, Italian, Burnt and Powd. ₩ ℔	4	@	5
Sienna, Ital., Burnt Lumps		1½@	3½
Sienna, Ital., Raw, Powd		4½@	5½
Sienna, Ital., Raw Lumps		1½@	3½
Sienna, American, Raw		1½@	1¾
Sienna, American, Burnt and Powdered		1½@	1¾
Talc, French		1½@	1½
Talc, American		0½@	1½
Terra Alba, Fr'ch. ₩ 100 ℔	75	@	80
Terra Alba, English	70	@	75
Terra Alba, American No. 1	70	@	75
Terra Alba, American No. 2	45	@	50
Umber, Turkey, Bnt. and Powd. ₩ ℔		3½@	4
Umber, Turkey Bnt. Ln		2½@	3
Umber, Turkey, Raw and Powdered		3½@	
Umber Turkey, R'w Lmps		2½@	2¾
Umber, Turkey, Bnt. Amer.		1½@	1¾
Umber, Turkey, R'w Amer.		1½@	1¾
Yellow, Chrome	10	@	20
Vermilion Americ. Lead		11½@	17
Vermilion, Quicks'er, bulk	57	@	..
Vermilion, Quicks'er, bags	58	@	..
Vermilion Quicksilver, smaller pkgs	62	@	..
Vermilion English Imper	85	@	90
Vermilion, Imitation, Eng.	8	@	35
Vermilion, Trieste	90	@	92½
Vermilion, Chinese	92½@		95
Whiting Common. ₩ 100 ℔	40	@	45
Whiting, Gilders'	50	@	60
Zinc, American, dry		@	..
Zinc, French, Red Seal	7¾	@	..
Zinc, French, Green Seal	9	@	..
Zinc, French, V. M. X		@	..
Zinc, Antwerp, Red Seal	7¾	@	..
Zinc, Antwerp, Green Seal	7¾	@	..
Zinc, German, L. Z. O		@	6¼

Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over.....10½@ 11¼
lots less than 1 ton.....11 @ 11½
Zinc, V. M. in Poppy Oil, Red Seal, ...@ ..
lots of 1 ton and over.....10 @ 10¼
Lots of less than 1 ton.....10½@ 10¾

Discounts.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Black, Drop, Frankfort	25	@	30
Black, Drop, English	12	@	15
Black, Drop, Dom-stic	7	@	10
Black, Lampblack, Best	20	@	35
Black, Lampblack, Common	7	@	15
Black, Ivory	3	@	15
Blue, Chinese	35	@	40
Blue, Prussian	30	@	45
Blue, Ultramar.ine	12	@	18
Brown, Vandyke	7	@	12
Green, Chrome	8	@	13
Green, Paris	16	@	18¼
Sienna, Raw	7	@	14
Sienna, Burnt	7	@	14
Umber Raw	7	@	10
Umber, Burnt	7	@	10

Putty.

In barrels and ½ bbls	.01¾@		.01¾
In tubs	.01¾@		.01¾
In tin cans	.01¾@		.02¼
In bladders	.01¾@		.02¼

Spirits Turpentine.

In regular bbls	30½@		..
In machine bbls	31	@	..

Glue.

Low Grade.....₩ ℔	8	@	10
Cabinet	12	@	14
Medium White	13	@	15
Extra White	17	@	20
French	10	@	22
English	10	@	15
Irish	12	@	..

CURRENT METAL PRICES.

JUNE 29, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in....	₩ ℔ 1.90 @ 2.00¢
Refined Iron:	
⅜ to 2 in. round and square. 1 to 4 in. x ⅜ to 1½ in.... 4½ to 6 in. x ⅜ to 1 in.	₩ ℔ 2.00 @ 2.10¢
1 to 6 in. x ¼ and 5-16	₩ ℔ 2.20 @ 2.30¢
Rods—⅜ and 11-16 round and sq.	₩ ℔ 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12	₩ ℔ 2.30 @ 2.40¢
"Burden Best" Iron, base price.	₩ ℔ ... 3.00¢
Burden's "H. B. & S." Iron, base price	₩ ℔ ... 2.80¢
"Ulster"	₩ ℔ ... 3.00¢
Norway Bars	3.75 @ 4.00¢
Norway Shapes	4.50 @ 5.00¢

Merchant Steel from Store.

	Per pound
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2¾¢
Best Cast Steel, base price in small lots.	8 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ ℔ 3 @ ...	3¾¢
17 to 20	₩ ℔ 3½ @ ...	3¾¢
21 to 24	₩ ℔ 3¼ @ ...	3¾¢
25 and 26	₩ ℔ 3⅜ @ ...	3¾¢
27	₩ ℔ 3½ @ ...	3¾¢
28	₩ ℔ 3⅝ @ ...	4 ¢
American B. B.	₩ ℔ 4¢ @ 4⅛¢	

Galvanized Sheet Iron.

	B. B.	2d qual
Nos. 10 to 16	₩ ℔ 4 20¢	4 ¢
17 to 22	₩ ℔ 4.60¢	4 30¢
23 to 24	₩ ℔ 4 90¢	4.70¢
25 to 26	₩ ℔ 5.30¢	5 ¢
27	₩ ℔ 5.60¢	5.30¢
28	₩ ℔ 6 ¢	5.70¢
29 to 30	₩ ℔ 7 ¢	6.70¢
Genuine Russia, according to assortment	₩ ℔ 11¼¢ @ 11¾¢	
Patent Planished	₩ ℔ A, 10¢; B, 9¢	
Craig Polished Sheet Steel	₩ ℔, 8¾¢	

English Steel from Store.

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 16½ @ 17 ¢
Swaged Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 12 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12½¢
R. Mushet's "Special"	₩ ℔ 48 ¢
" " "Titanic"	₩ ℔ 20 ¢

METALS.

Tin.

	Per ℔
Banca, Pigs	23¢
Straits, Pigs	23¢
Straits in Bars	25¢

Tin Plates.

Duty: 2.2 cents per pound.

Charcoal Plates.—Bright.

Guaranteed Plates command special prices, according to quality. Per box.

Melyn and Calland Grade.	IC,	10	x14..	@ $6.50
" " "	IC,	12	x12..	@ 6.75
" " "	IC,	14	x20..	@ 6.50
" " "	IC,	20	x28..	@ 13.00
" " "	IX,	10	x14..	@ 8.50
" " "	IX,	12	x12..	@ 8.75
" " "	IX,	14	x20..	@ 8.50
" " "	IX,	20	x28..	@ 17.00
" " "	DC,	12½	x17..	@ 6.00
" " "	DX	12½	x17..	@ 8.00
Allaway Grade	IC,	10	x14..	@ 6.00
" "	IC,	12	x12..	@ 6.25
" "	IC,	14	x20..	@ 6.00
" "	IC,	20	x28..	@ 12.00
" "	IX,	10	x14..	@ 7.50
" "	IX,	12	x12..	@ 7.75
" "	IX,	14	x20..	@ 7.50
" "	IX,	20	x28..	@ 15.00
" "	DC,	12½	x17..	@ 5.50
" "	DX,	12½	x17..	@ 7.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20..	$5.70	@	$5.75
10 x 20..		@	8.50
20 x 28..	11.50	@	12 00
IX, 10 x 14, 14 x 20..	....	@	7.00
BV Grade.—IC, 10 x 14, 14 x 20..	....	@	5.75

Charcoal Plates.—Terne.

Guaranteed Plates command special prices according to quality.

Dean Grade.—IC, 14 x 20	....	@	$5.75
20 x 28	....	@	11 00
IX, 14 x 20	....	@	6 50
20 x 28	....	@	13 00
Abecarne Grade.—IC, 14 x 20	....	@	5 65
20 x 28	10.75	@	11 00
IX 14 x 20	....	@	6 50
20 x 28	....	@	13 00

Tin Boiler Plates.

IXX, 14 x 20	112 sheets	@ $13.38
IXX, 14 x 28	112 sheets	@ 14.00
IX 14 x 31	112 sheets	@ 16.00

Copper.

Duty: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ ₩ ℔. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot

Lake	@ 12½¢
Ansonia Grade Arizona	@ 12 ¢
Ansonia Grade Casting	@ 11½¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 5, 1890. Subject to a discount of 10 % @ 20 %, according to size of order.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	22	22	23	24	25	28	30
30		72	22	22	22	23	25	27	31	...
36	96		22	22	23	24	26	30	33	....
36		96	22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	23	25	27	29	34	....	....
60		96	22	23	26	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84		96	24	25	....	....	....	....	....	....
Over 84 in. wide			25	27	....	....	....	....	....	....

Bolt Copper, ⅝ inch diameter and over, per pound 22¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ ℔ over the foregoing prices.

Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ ℔ over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms

10 % @ 20 % discount, according to size of order.

Copper Wash Bowl Bottoms.

Tinned ₩ ℔ 34¢, 10% @ 20 %

Tinning.

Net.

Tinning sheets on one side, 10, 12 and 14 x 48 each	8¢
Tinning sheets on one side, 30 x 60 each	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each	12¢
Tinning sheets on one side, other sizes, per square foot	2½¢
For tinning both sides double the above prices.	

Planished Brass and Copper.

Not larger than 30 x 60.

16 oz. and heavier	24¢ ₩ ℔
14 oz.	25¢ ₩ ℔
12 oz.	27¢ ₩ ℔

Seamless Brass Tubes.

Net.

Dec. 16, 1891.

O. G.	N. G.	⅝	½	⅜	¼	⅛	1	1⅛
8-14	6-12	30	26	23	22	21	20	17
15	13	31	26	24	23	22	21	18
16	14	32	27	25	24	23	22	18
17	15	33	28	26	25	24	23	19
18	16	35	29	27	25	24	23	20
19	17	36	30	28	27	26	25	22
20	18-19	37	32	30	29	28	27	24
21	20	39	34	32	31	30	29	27
22	21	41	35	34	32	31	30	29
23	22	43	37	35	34	33	32	32
24	23	46	39	37	36	34	33	34
25	24	49	42	39	38	37	36	38

Copper Tubes, 3¢ ₩ ℔ additional.

Copper Bronze and Gilding Tube, 8¢ ₩ ℔ additional

Brazed Brass Tubing. To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	$1.00
Plain, ⅛ inch	1.50
Fancy Tubing, Brass, to No. 20, inclusive	45¢ ₩ ℔
Bronze Tubing, 8¢ ₩ ℔ more than Brass.	
Discount from list	30 @ ..%

Roll and Sheet Brass.

(Brown & Sharpe Standard Gauge.)

Common High Brass: Wider than and including	in. 2	in. 10	in. 12	in. 14	in. 16	in. 18	in. 20	in. 22	in. 24
To No. 20, inclusive	.21	.22	.23	.25	.27	.29	.31	.32	
Nos. 21, 22, 23 and 24	.22	.23	.24	.26	.28	.30	.32	.34	
Nos. 25 and 26	.22½	.23½	.24½	.27	.29	.31	.33	.36	
Nos. 27 and 28	.23	.24	.25	.28	.30	.32	.34	.36	

Common High Brass: Wider than and including	in. 24 26	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40
To No. 20, inclusive	.36	.39	.42	.46	.50	.55	.60	.66
Nos. 21, 22, 23 and 24	.37	.40	.43	.47	.51	.56	.61	.68
Nos. 25 and 26	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28	.39	.42	.45	.49	.53	.58	.65	.73

Discount from List 10 % to 25 %.

Brass and Copper Wire.

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Copper.
All Nos. to No. 16, inclusive	$0.22	$0.24	$0 26	$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 " " 20	.24	.26	.28	.32
No. 21, or 0.032 diam.	.25	.27	.29	.33

Discount 10 % to 25 %.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Copper.
No. 22	$0.26	$0.28	$0.30	$0.34
No. 23	.28	.30	.32	.36
No. 24	.30	.32	.34	.38
No. 25	.32	.34	.36	.40
No. 26	.35	.37	.39	.43
No. 27	.38	.40	.42	.46
No. 28	.42	.44	.46	.51
No. 29	.45	.47	.49	.54
No. 30	.48	.50	.52	.62
No. 31	.51	.53	.55	.67
No. 32	.55	.57	.59	.73
No. 33	.59	.61	.63	.82
No. 34	.64	.66	.68	.95
No. 35	.70	.72	.74	1.30
No. 36	.76	.78	.80	1.50
No. 37	1.00	1.02	1.04	1.70
No. 38	1.30	1.32	1.34	2.00
No. 39	2.00	2.02	2.00	3.25
No. 40	2.60	2.62	2.60	5.75

— % discount.

Spring Wire, 2¢ ₩ ℔ advance.

Copper Belt and Hose Rivets and Burrs.

	Per ℔.		Per ℔.
No. 5	49¢	No. 11	56¢
No. 6	49¢	No. 12	53¢
No. 7	49¢	No. 13	90¢
No. 8	50¢	No. 14	85¢
No. 9	52¢	No. 15	70¢
No 10	54¢		

60 % @ 5 % discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.

¼ to ¾ inch inclusive	18¢ ₩ ℔
Over ⅞ to 3½ inches inclusive	17¢ ₩ ℔
Over 3½ to 5 inches inclusive	17¢ ₩ ℔

Piston Rods, Finished True, Smooth and Straight.

¼ to ¾ inch inclusive	19¢ ₩ ℔
Over ⅞ to 2 inches inclusive	18¢ ₩ ℔
Over 2 to 3½ inches inclusive	19¢ ₩ ℔
Over 3½ to 5 inches inclusive	2.¢ ₩ ℔

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 ℔.

Western Spelter	5¼¢
Bertha (pure)	8¾¢

Zinc.

Duty; Sheet, 2½¢ ₩ ℔.

600 ℔ casks	6⅞¢
Per ℔	7 ¢

Lead.

Duty: Pig, $2 ₩ 100 ℔. Old Lead, 2¢ ₩ ℔. Pipe and Sheets 2½¢ ₩ ℔.

American Pig	4½¢ @ ...
Bar	5 ¢
Pipe, subject to discount 30 %	6½¢
Tin-Lined Pipe, subject to discount 20 %	15¢
Block Tin Pipes, subject to discount 20 %	37½¢
Sheet subject to discount 20 %	¢

Old Lead in exchange, 3 @ ₩ ℔.

Solder.

½ @ ½ (Guaranteed)	13¾¢
No. 1	11¾ @ 11¾¢
Extra Wiping	12 @ 12½¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson	₩ ℔ 15 @ 15½¢
Hallett's	" @ 12 ¢

ALUMINUM.

Prices Per Ton.

Duty: 15 cents per pound.

Over 98 % pure	₩ ℔ .75
94 % @ 98 % pure	₩ ℔ .65

Old Metals.

Prices Paid in New York.

Heavy Copper	₩ ℔ 10 ¢
Light and Tinned Copper	₩ ℔ 9 ¢
Heavy Brass	₩ ℔ 7 ¢
Light Brass	₩ ℔ 6 ¢
Lead	₩ ℔ 3½¢
Tea Lead	₩ ℔ 3½¢
Zinc	₩ ℔ 2½¢
No. 1 Pewter	₩ ℔ 14 ¢
No 2 Pewter	₩ ℔ 7 ¢
Wrought Scrap Iron	₩ gross ton $17.00
Heavy Cast Scrap	₩ gross ton 10.00
Stove Plate Scrap	₩ gross ton 7.00
Burnt Iron	₩ gross ton 5.00

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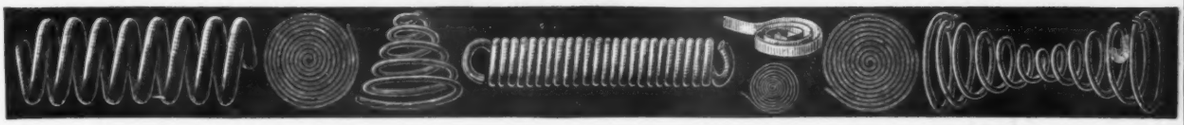

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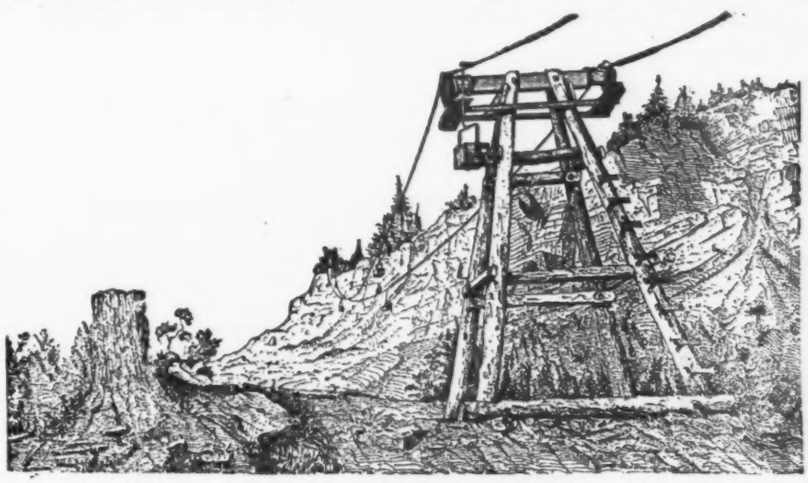

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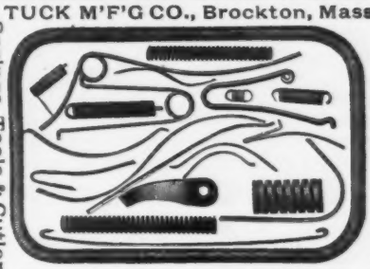

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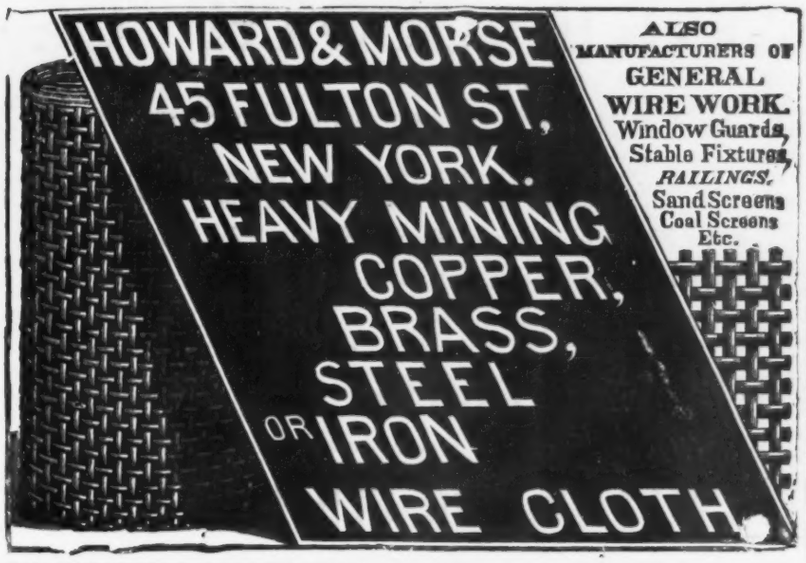

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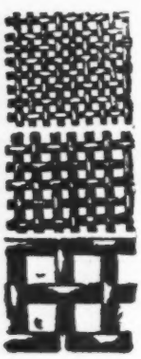

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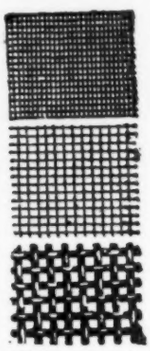

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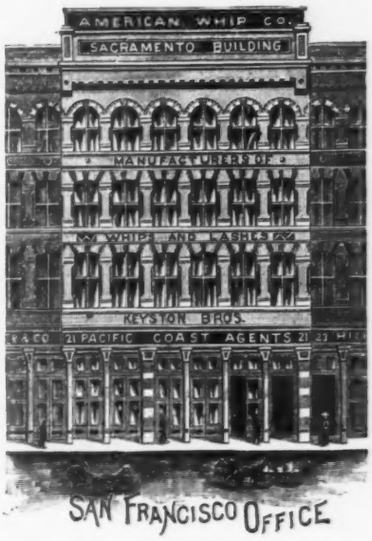

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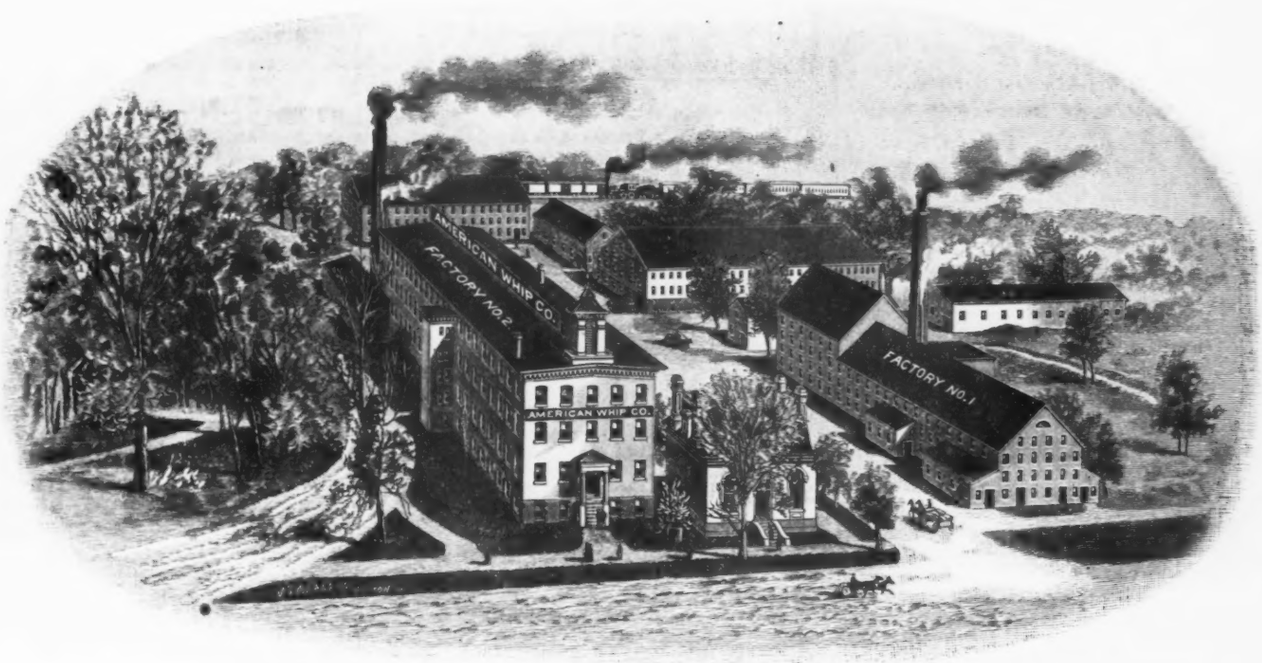

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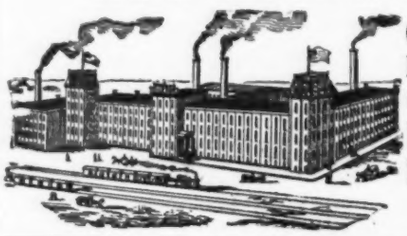

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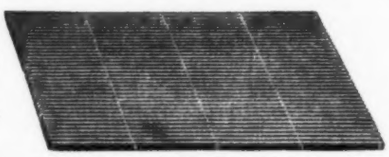

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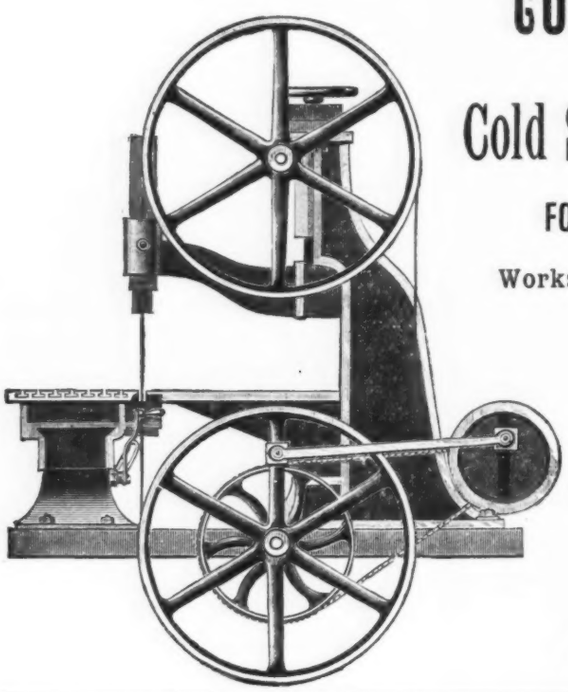

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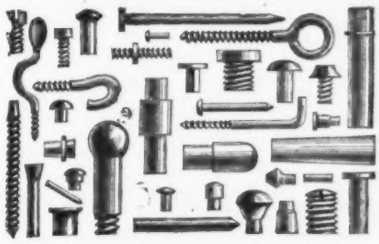

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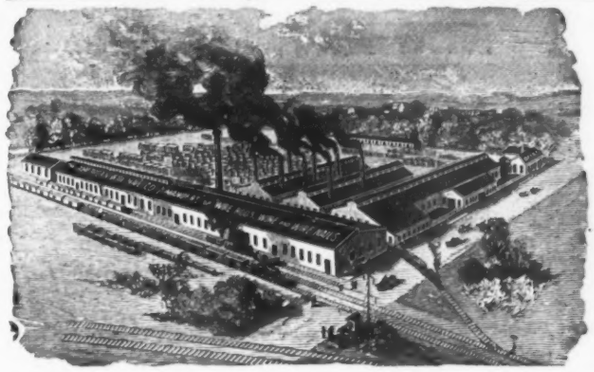

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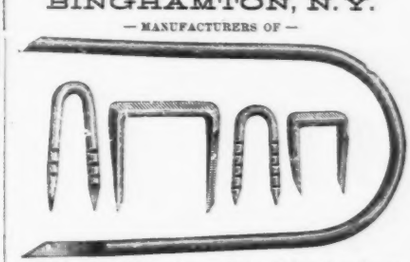

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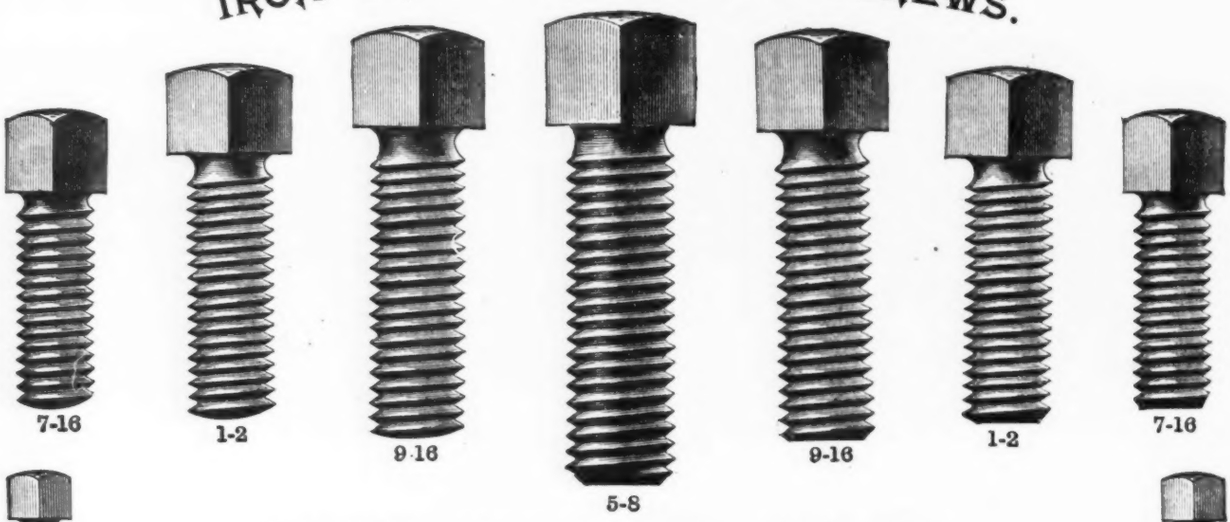
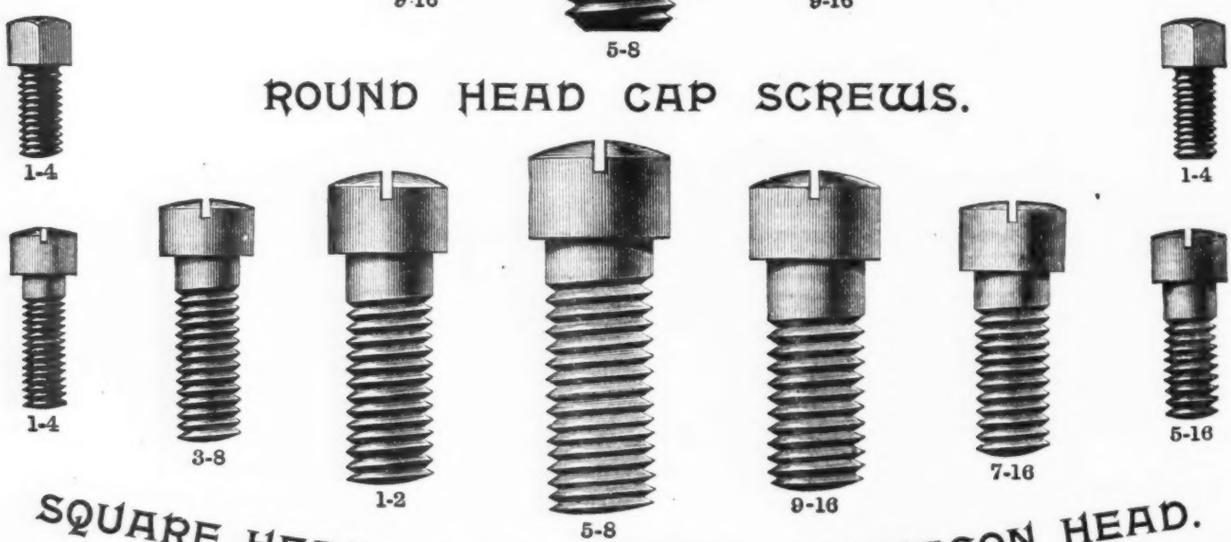


ROUND HEAD CAP SCREWS.



SQUARE HEAD CAP SCREWS HEXAGON HEAD.

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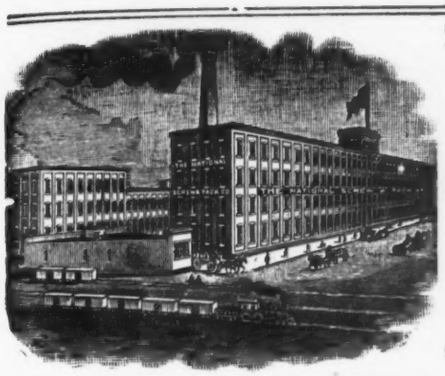

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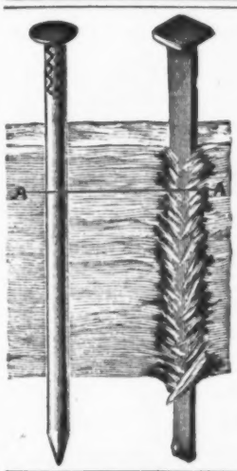

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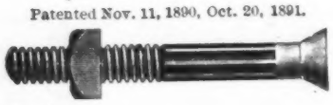
Stronger than a cut screw.
Forged nick.
Requires the use of only one bit.
Inserted easier.
Increased holding power.
Centralized point.
Is cold forged, and entire surface has a metallic skin.

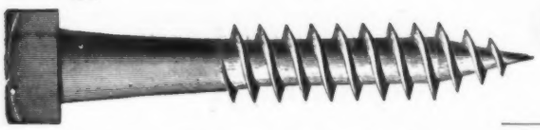
Samples Sent on Application.

Patented Nov. 11, 1890, Oct. 20, 1891.



FLUTED TIRE BOLTS.

SEND FOR SAMPLES.



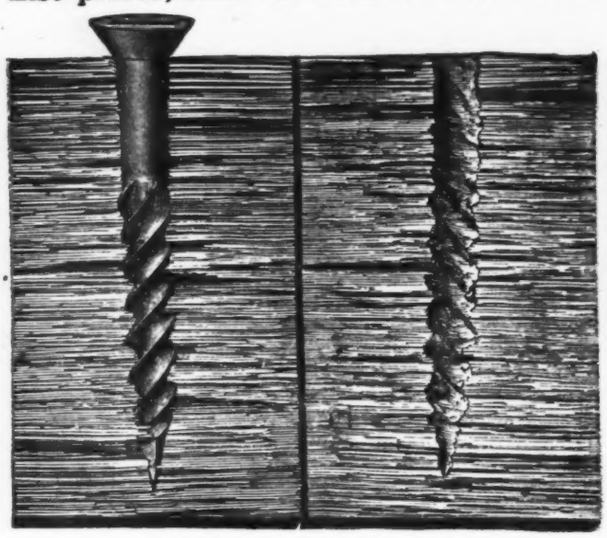
Cold Forged Coach Screws.

Patented May 10, July 19, '87; Oct. 29, '89; Aug. 19, Oct. 21, '90: Apr. 7, '91.

"ROGERS' DRIVE SCREWS."

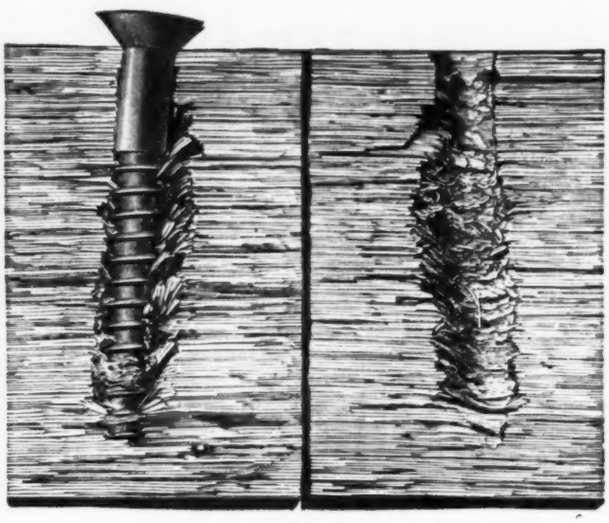
Patented May 10, 1887; July 19, 1887; July 10, 1888. Other patents pending.

List prices, same as common iron wood screws. Discount for Flat Heads, 82½%



THE "ROGERS DRIVE SCREW,"

Driven with a hammer its entire length.



A COMMON CUT THREAD SCREW,

As ordinarily inserted, *i. e.*, driven two-thirds of its length with a hammer and the balance with a screw-driver. Fibres of the wood are necessarily broken, and holding power of screw much impaired.

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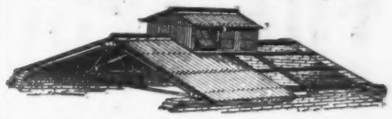

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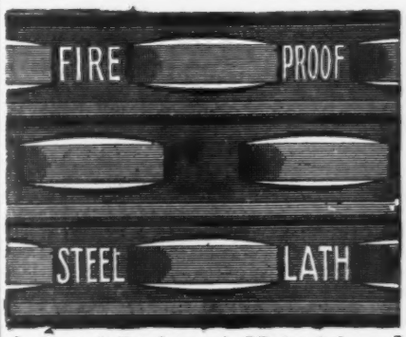

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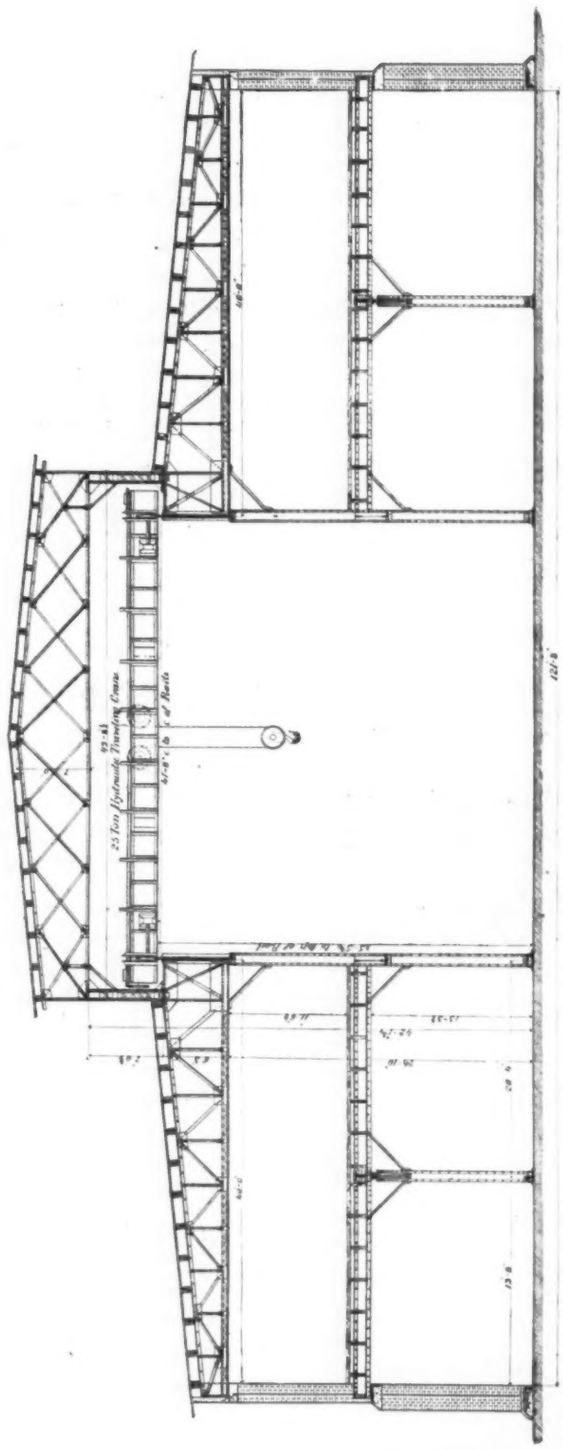

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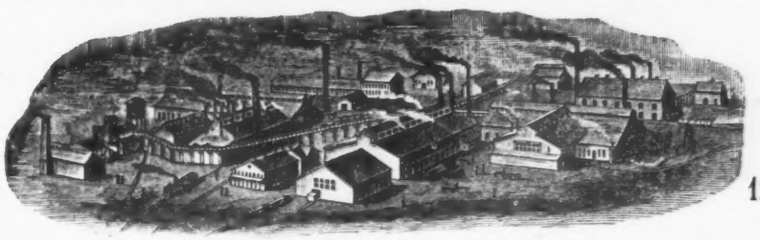

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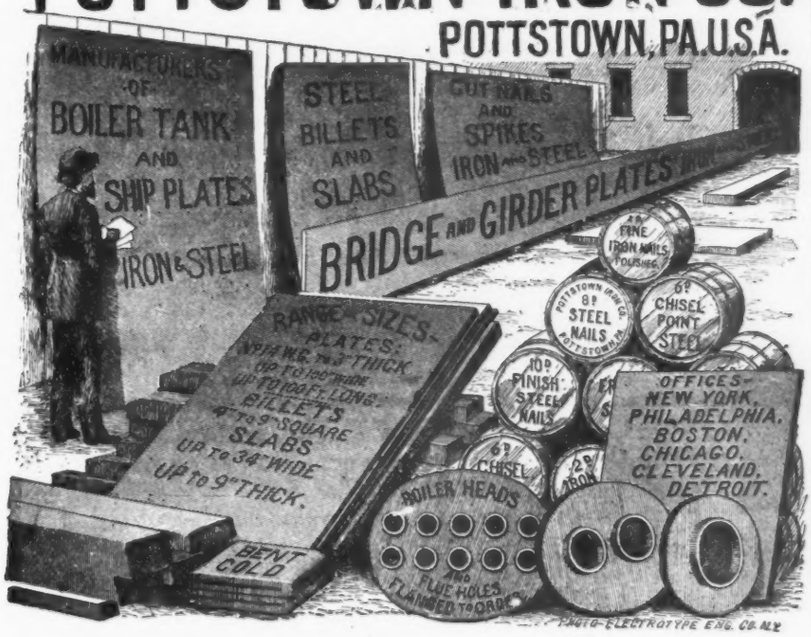

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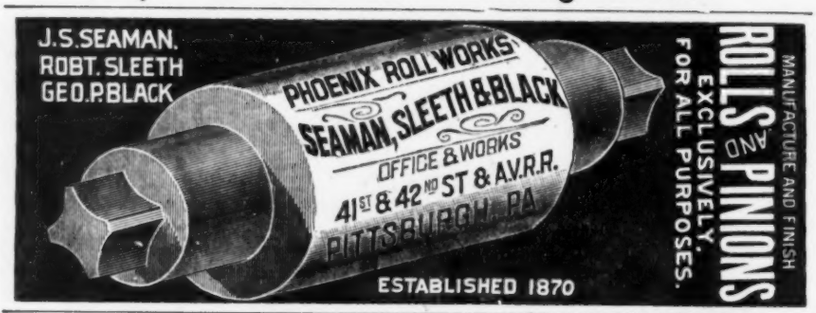

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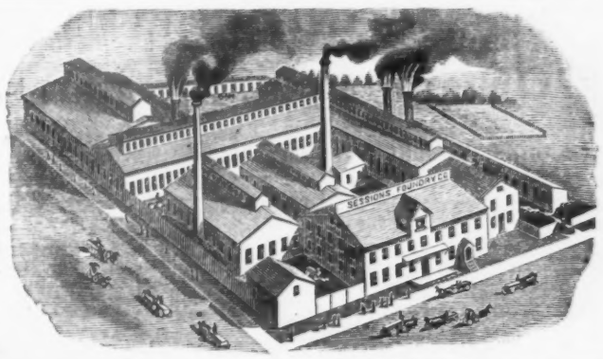

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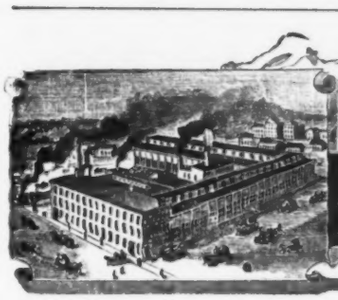

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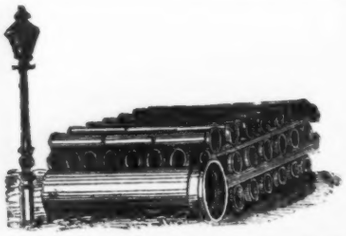

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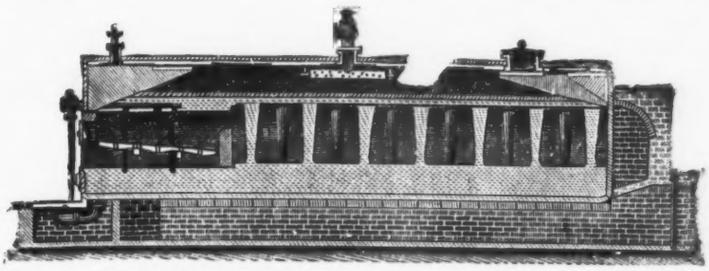

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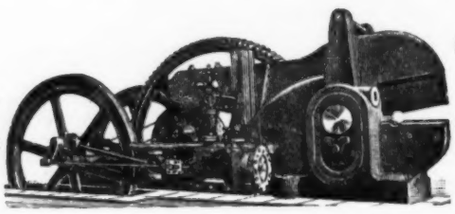

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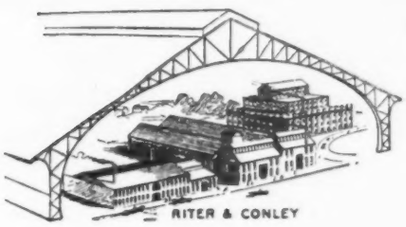

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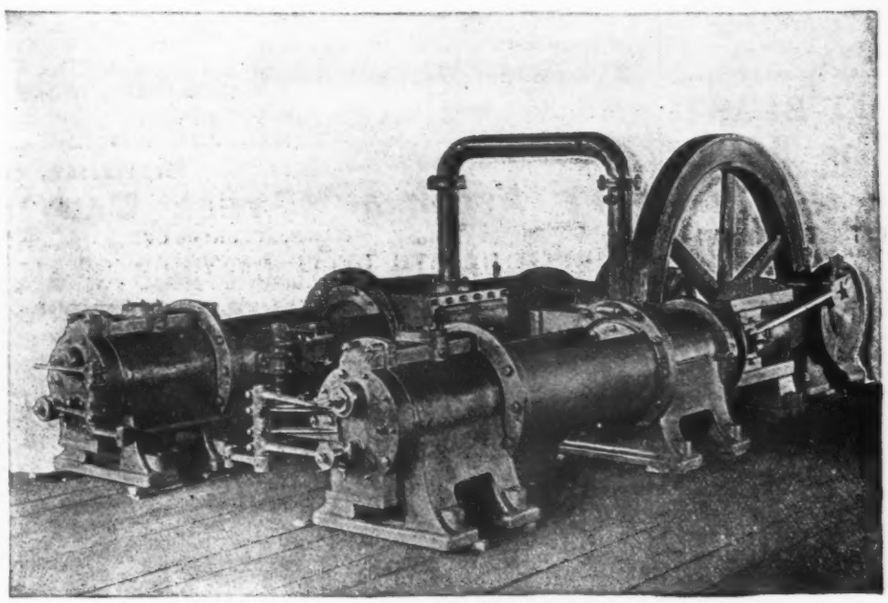

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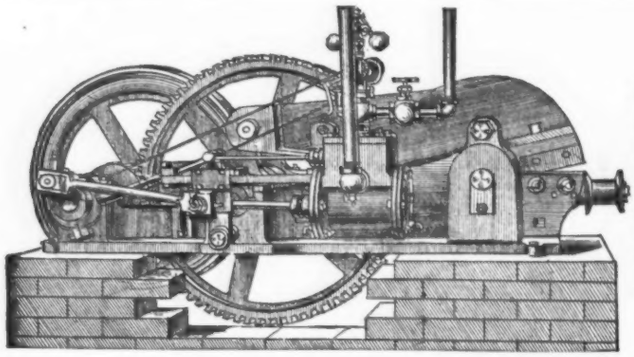

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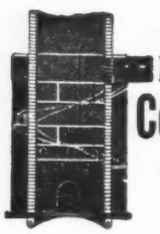

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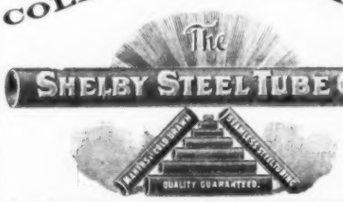

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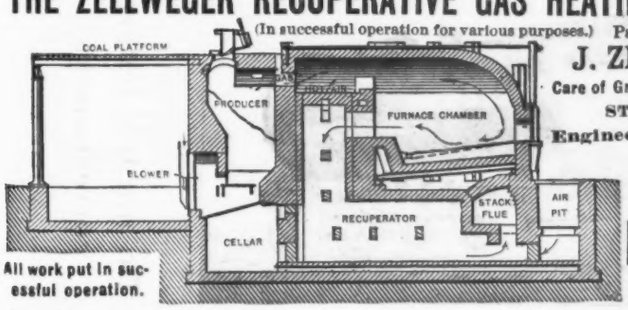

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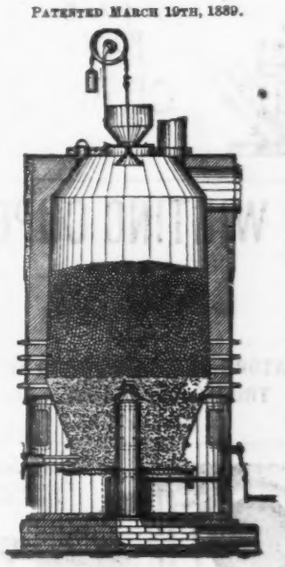

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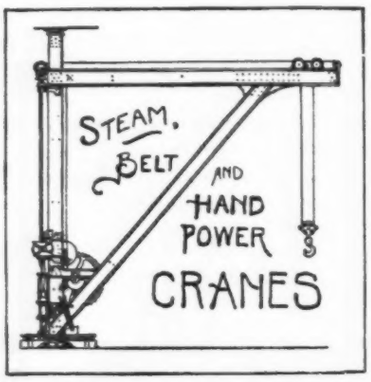

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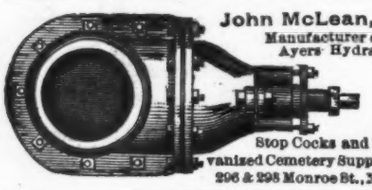

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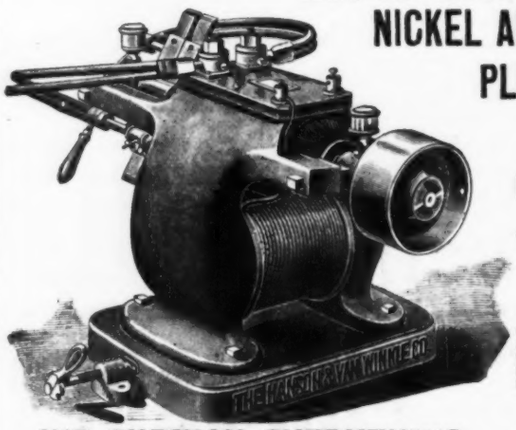

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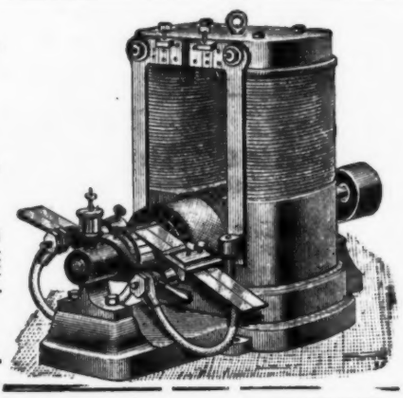

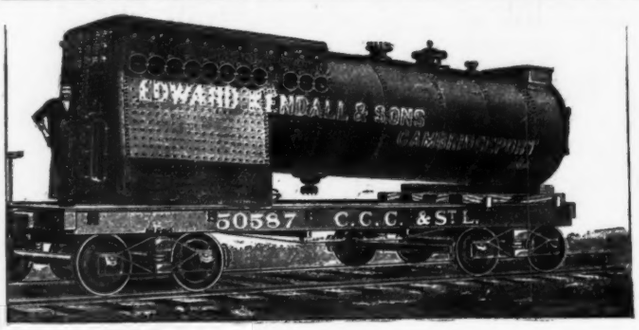

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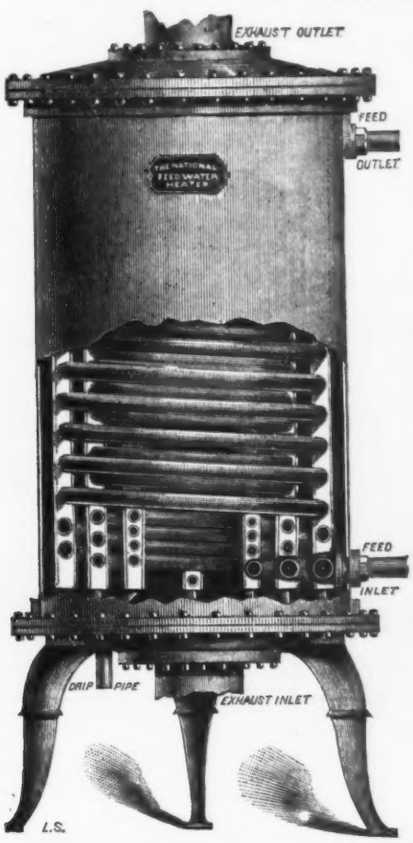

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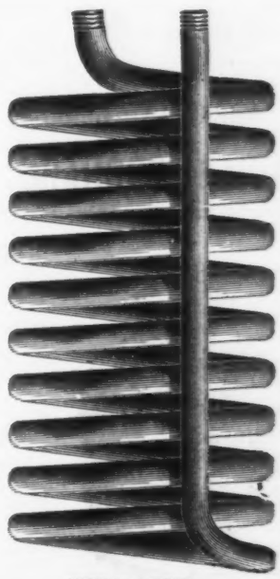

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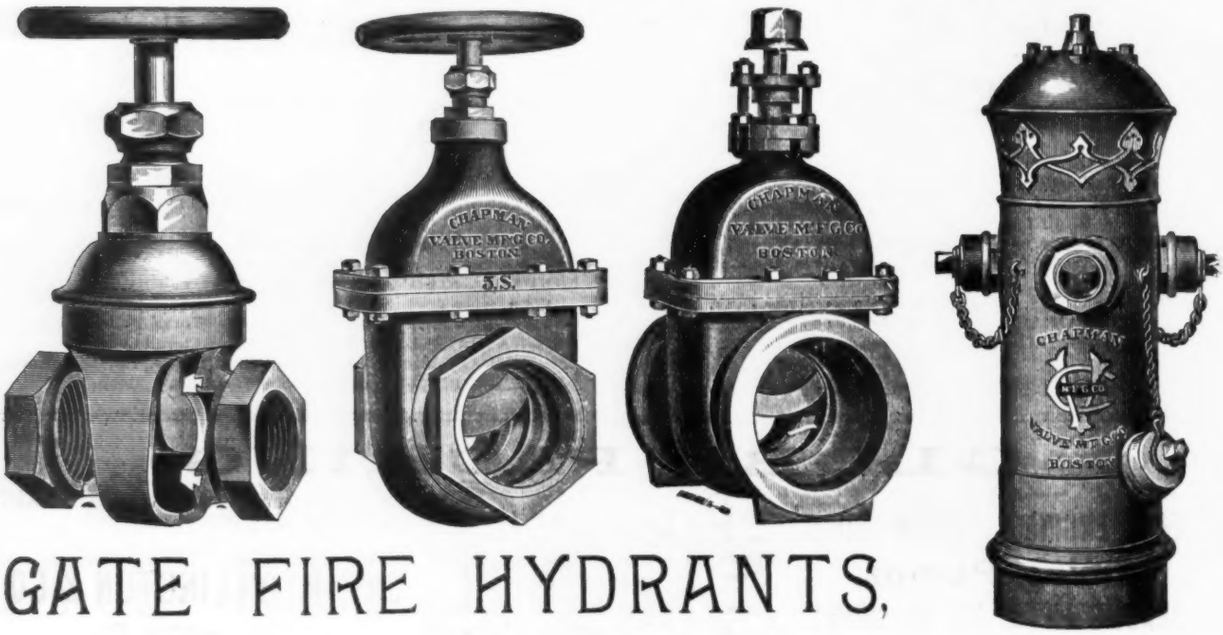

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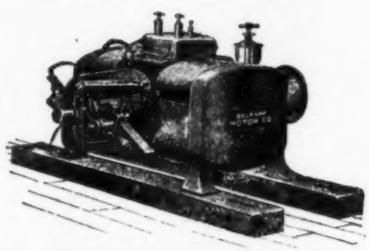

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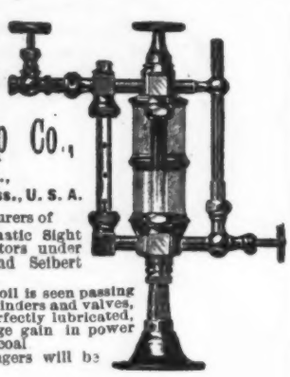

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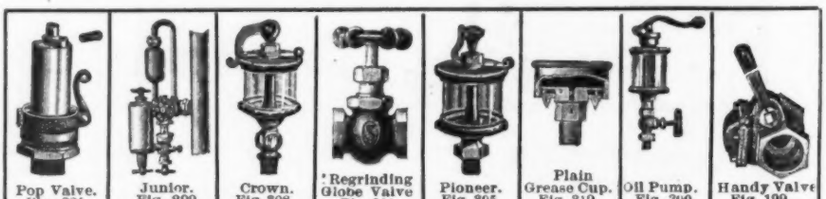

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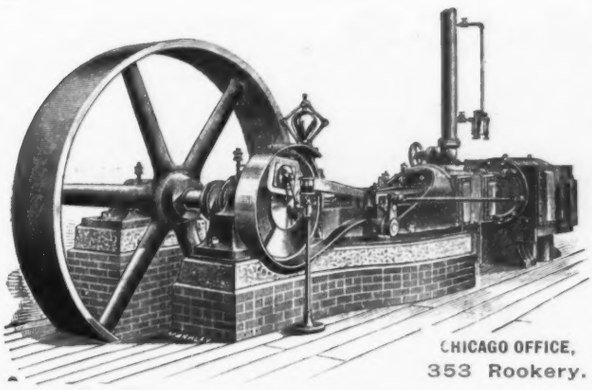

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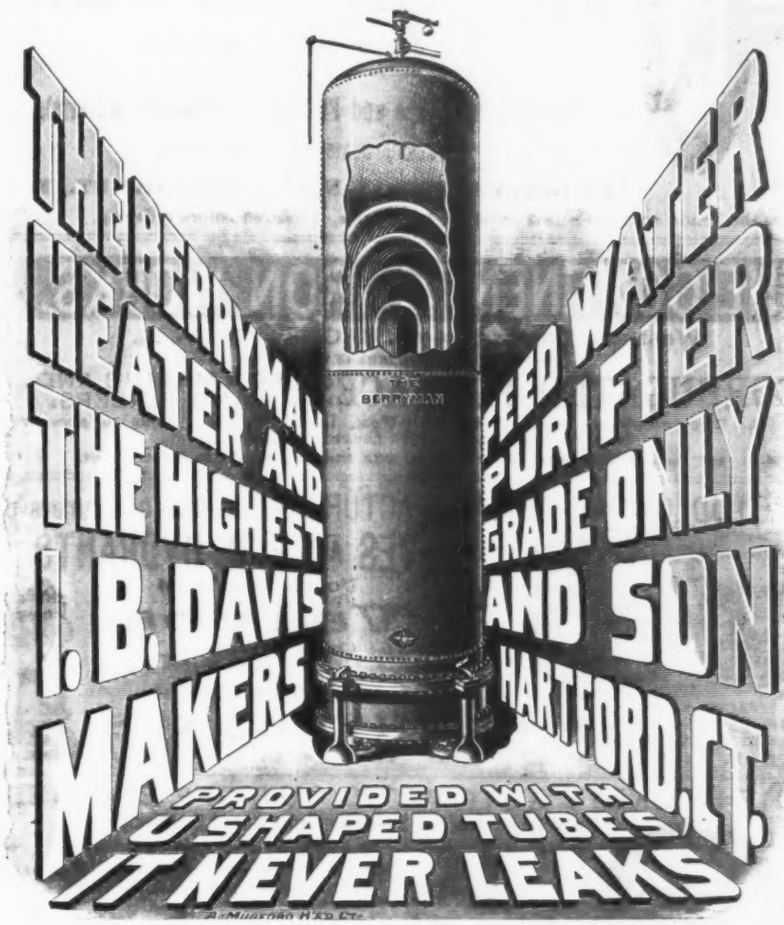

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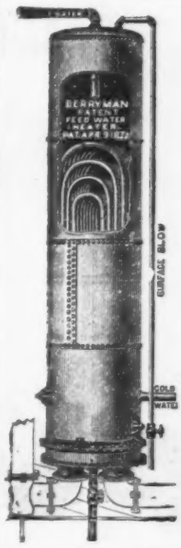

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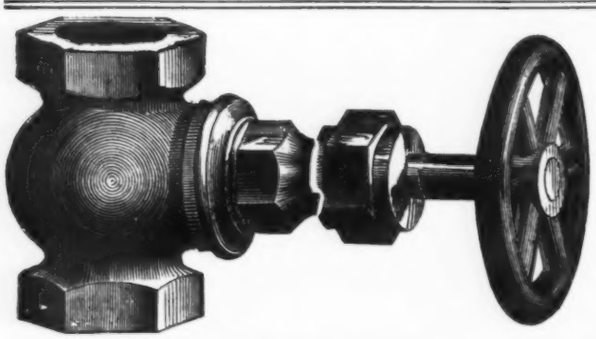

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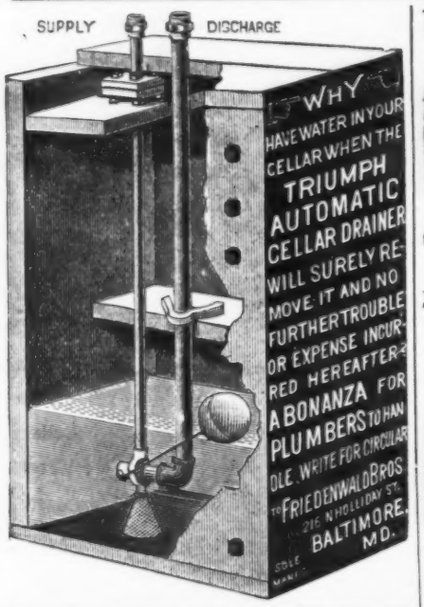

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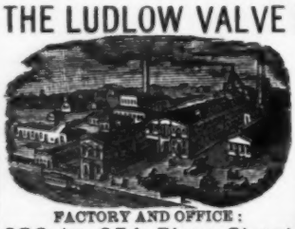

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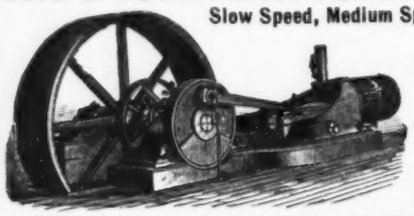

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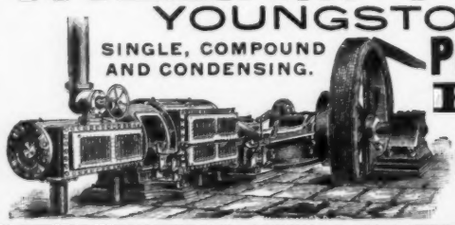

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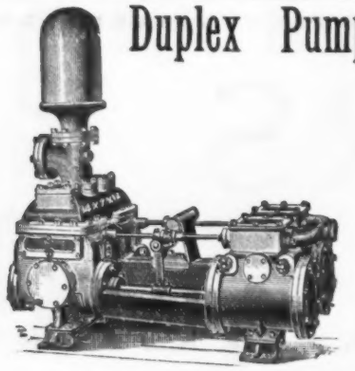

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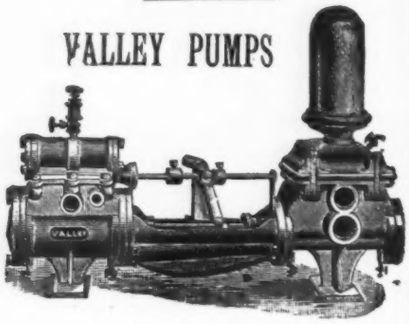

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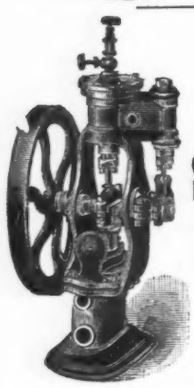

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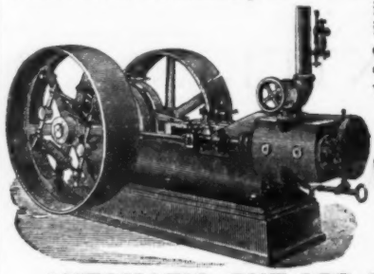

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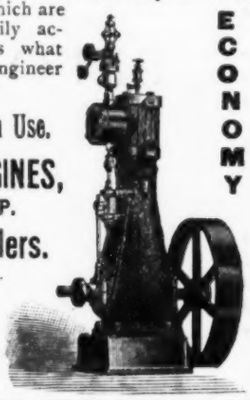

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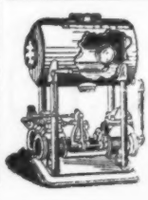

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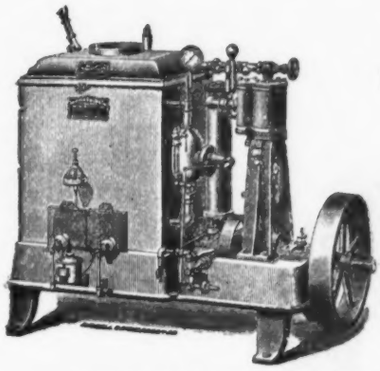

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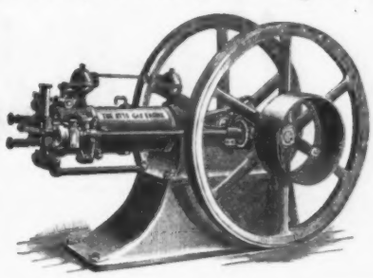

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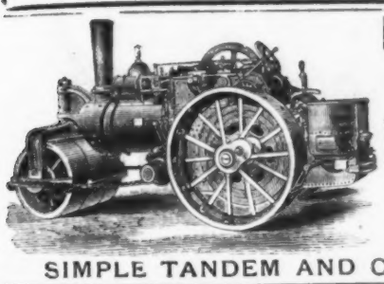

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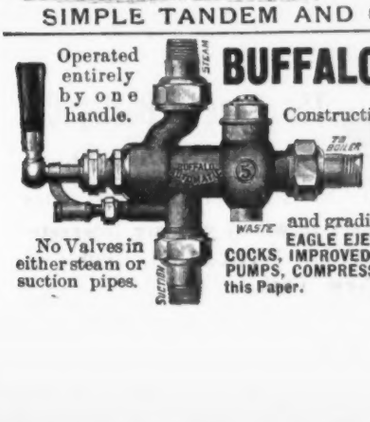

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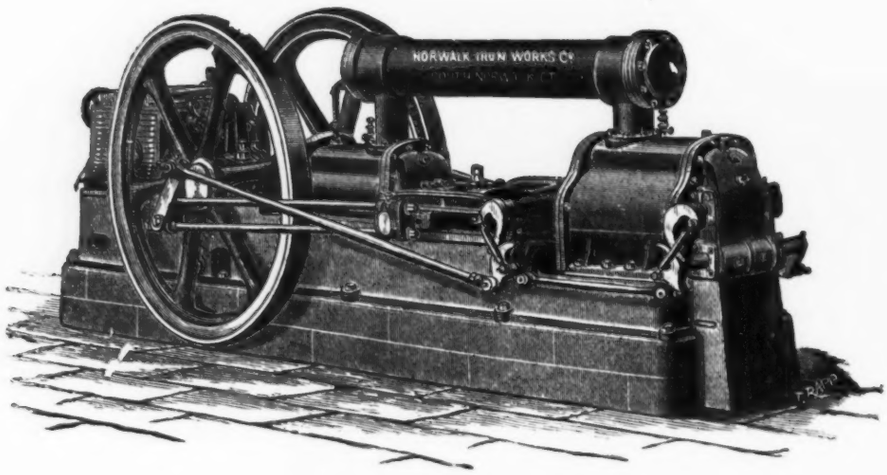

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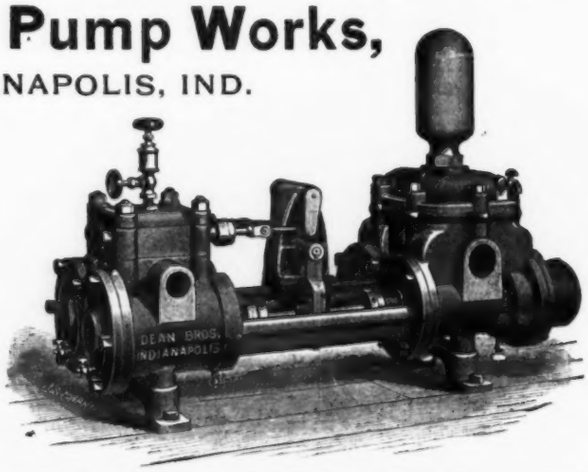

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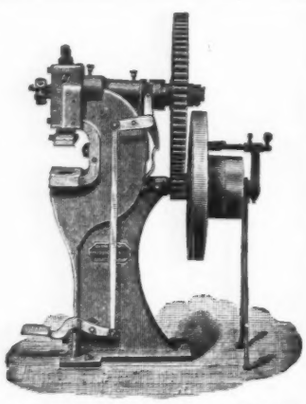

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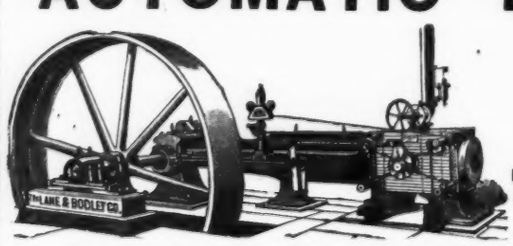

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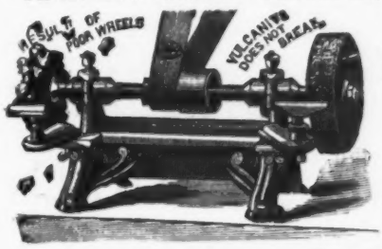

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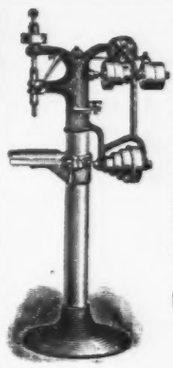

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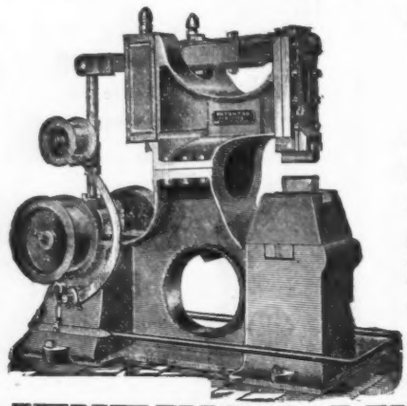

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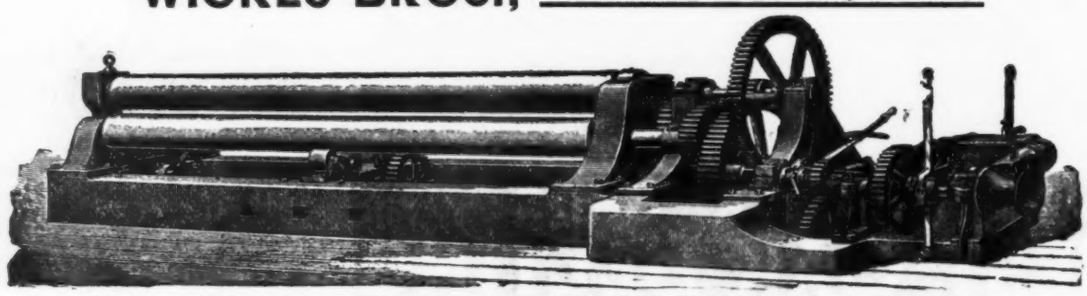

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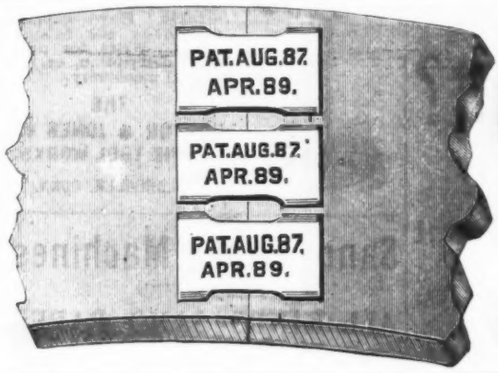

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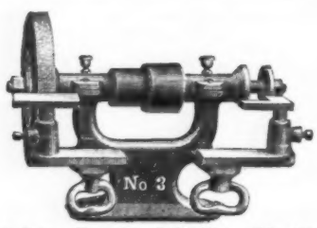

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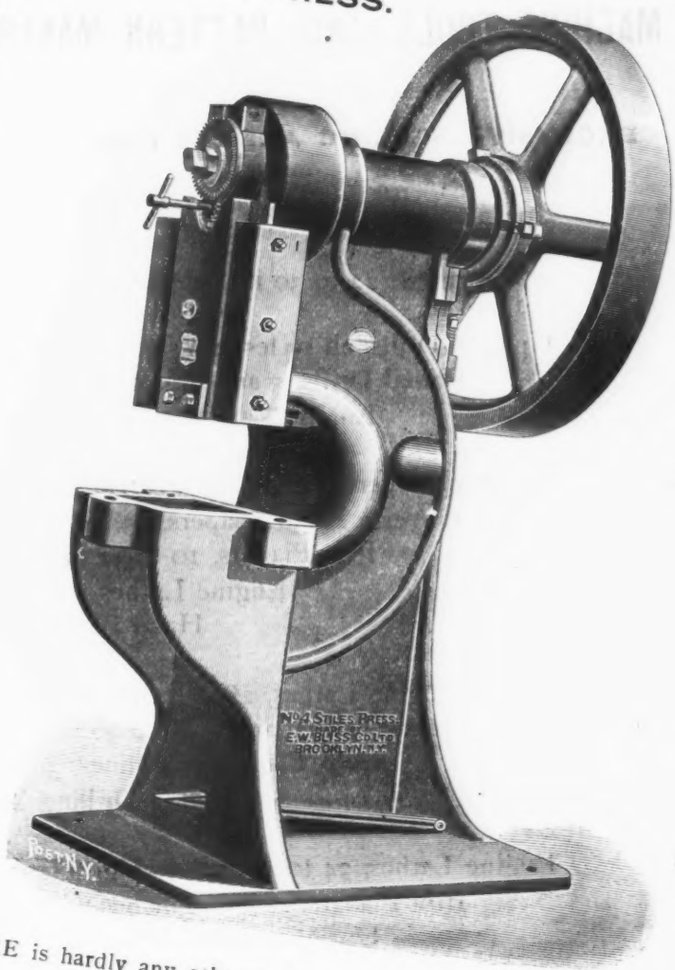

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1 Porter Lathe, 15 " " 6 "
1 Porter Lathe, 16 " " 6 " with compound rest.
1 Prentice Lathe, 16 " " 6 "
3 Prentice Lathes, 16 " " 8 "
1 Prentice Lathe, 16 " " 8 " with taper attachment.
1 Prentice Lathe, 18 inch swing, 8 ft. bed.
1 Prentice Lathe, 18 " " 8 " with taper attachment.
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1 Fifield Lathe, 20 " " 8 "
1 Fifield Lathe, 20 " " 10 "
1 Perkins Lathe, 21 " " 10 "
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1 Prentice Upright Drill, 36 "
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1 Shawmut Lathe, 16 " " 6 "
1 Bullard Lathe, 16 " " 10 "
1 Hendey Lathe, 20 " " 8 "
1 Chicago Lathe, 20 " " 7 "
1 Ferris & Miles Lathe, 20 inch swing, 8 ft. bed.
1 Pond Lathe, 20 " " 14 "
1 Flather Lathe, 26 inch swing, 14 ft. bed.
1 Eddy Chucking Lathe, 36 inch swing.
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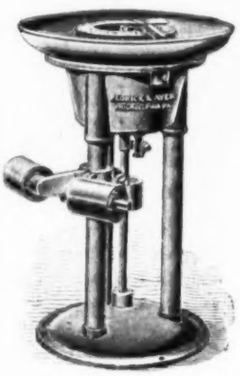
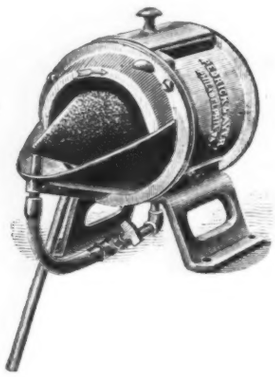
The water is carried to wheels from tank by head force, and back again into tank by centrifugal force, keeping a continuous circulation as long as enough water is kept in tank to cover supply pipes.

UPRIGHT GRINDER.



On this machine the water is brought on to and carried over the surface of wheel and back to tank again by centrifugal force alone and so continuously as long as water is kept in tank.

The grinding face of wheel is slightly beveled to accommodate the grinding of long knives which have to lay across the wheel from one side to the other. It is designed for grinding all kinds of wood-working tools having straight edges like planes, chisels, knives, etc., and is also effective for grinding machinists' and kindred tools.



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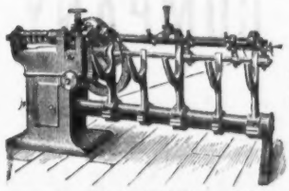

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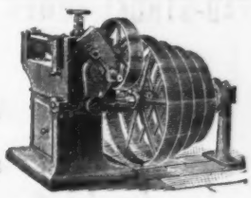

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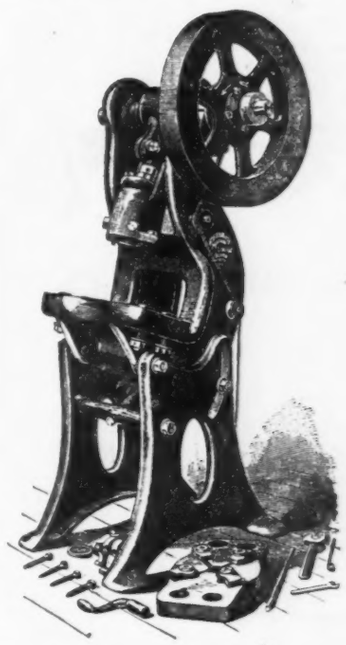

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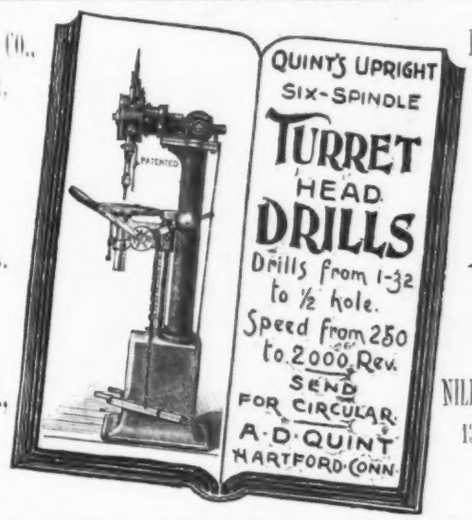

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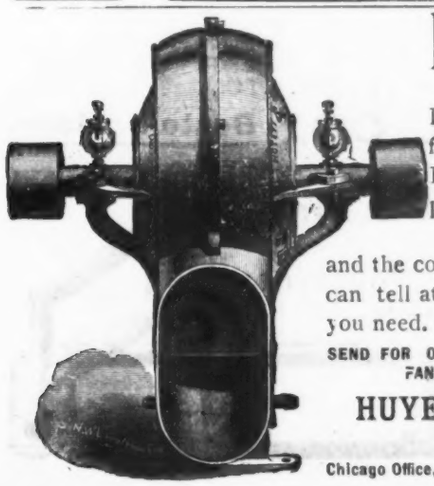

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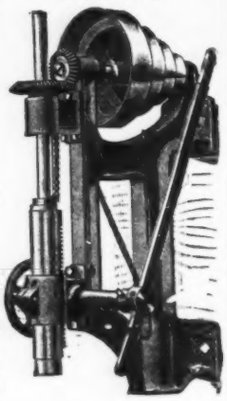

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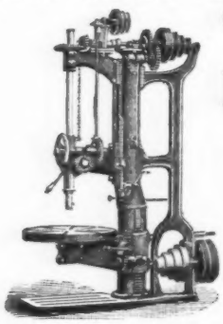

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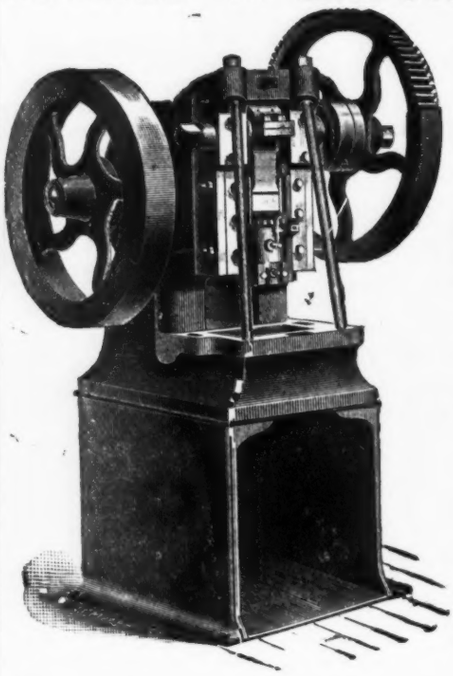

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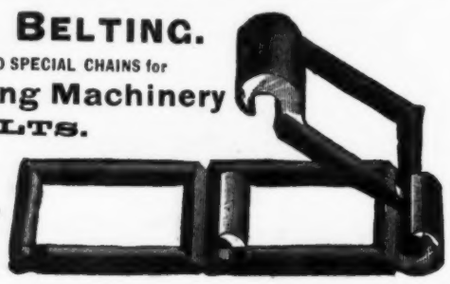

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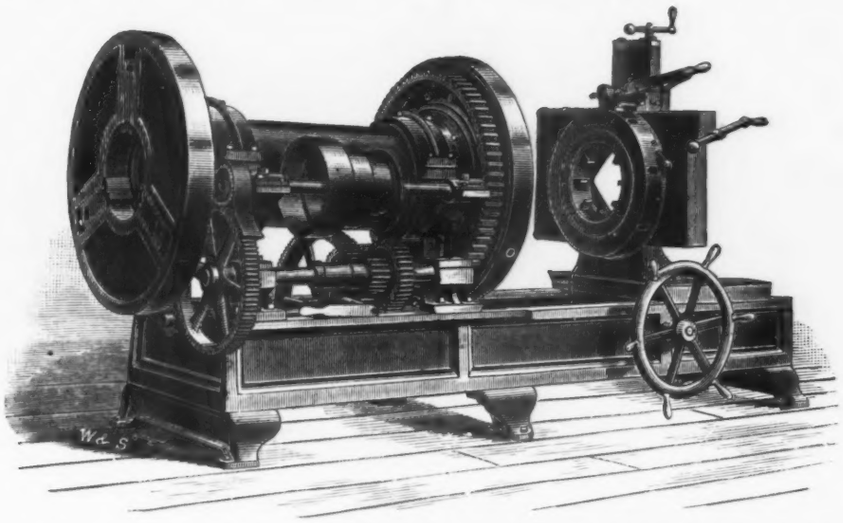

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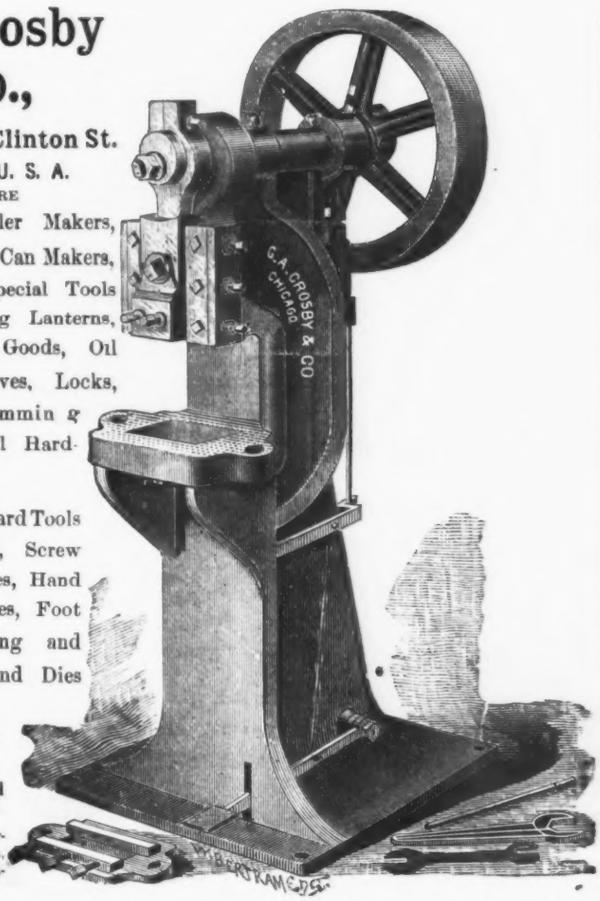

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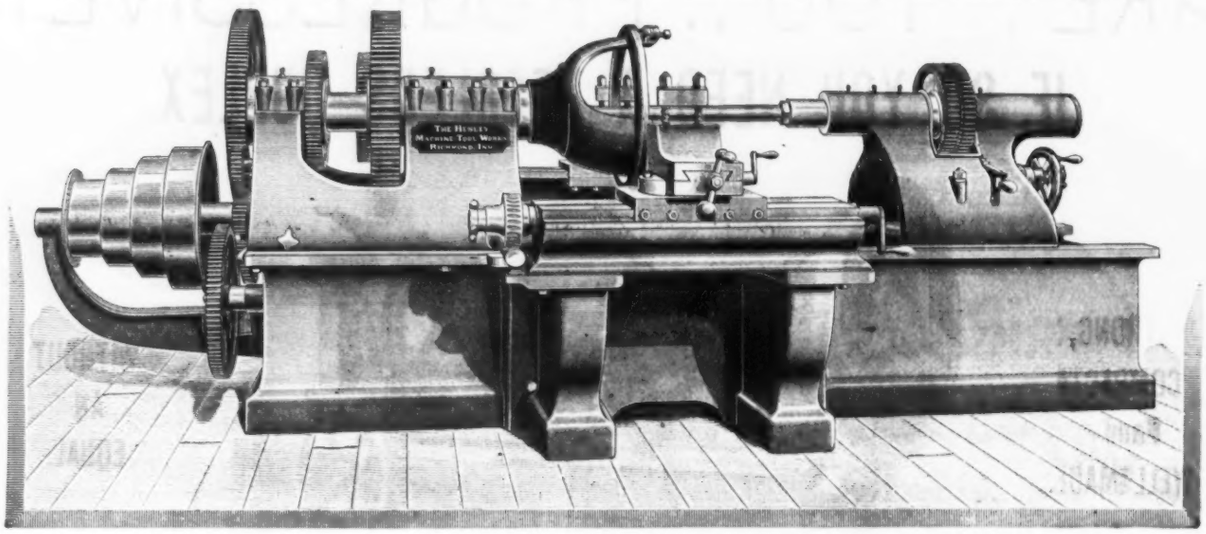

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This cut represents the 42-inch Lathe. The 60-inch Lathe is of same design, but much heavier throughout. The 30-inch Lathe is of same general construction, with the bed supported on feet at each end.

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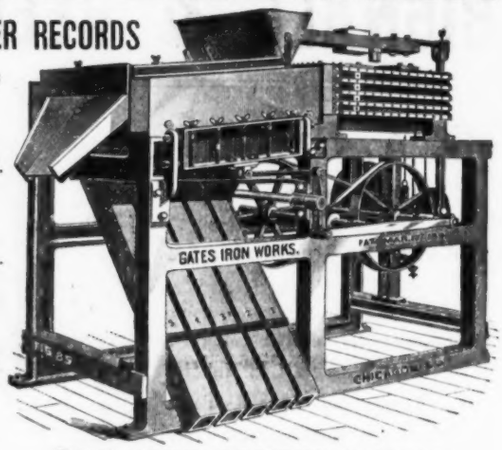

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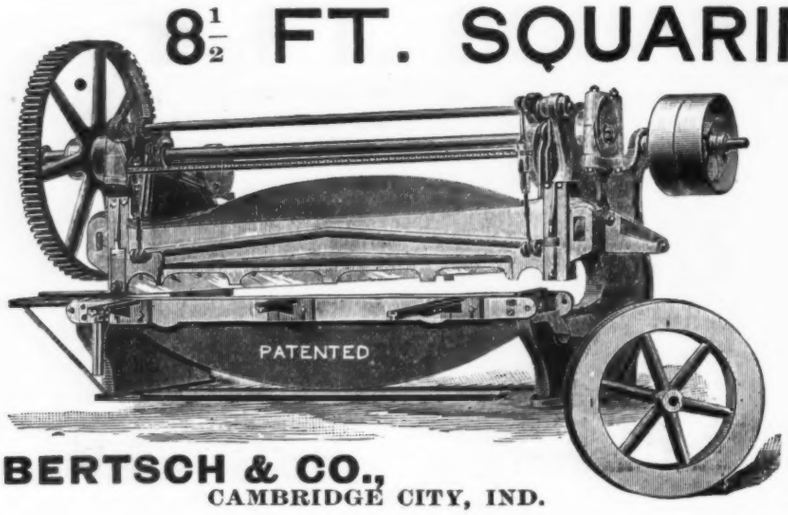

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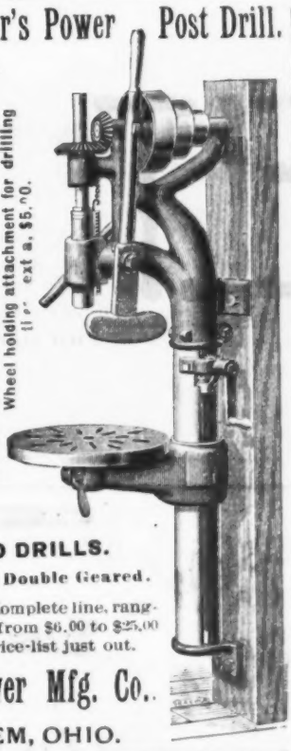

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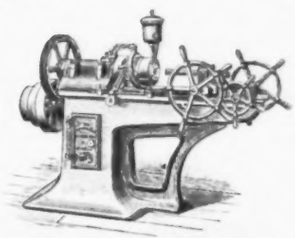

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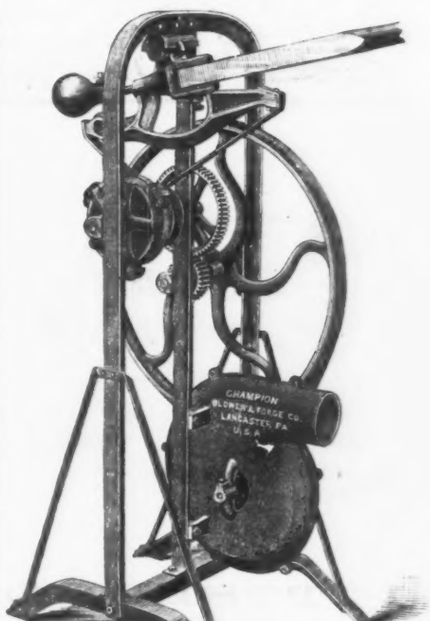

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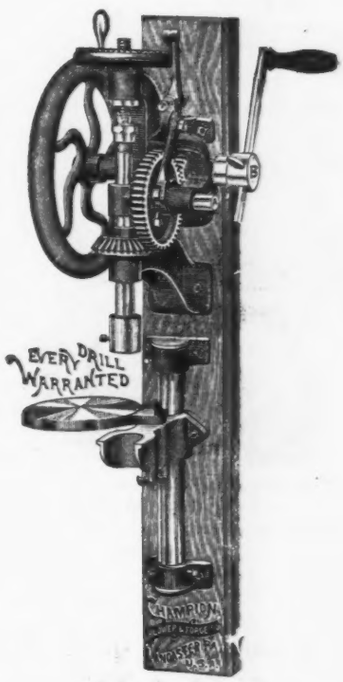

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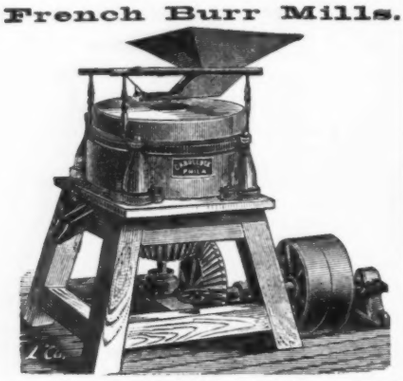

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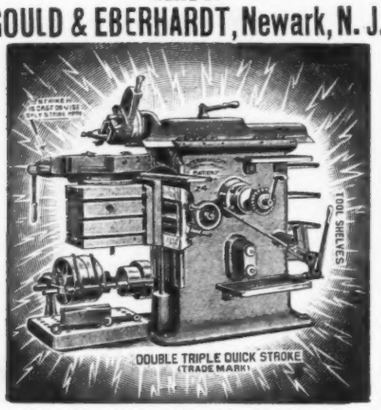

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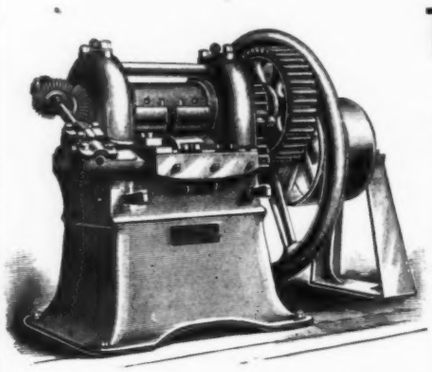

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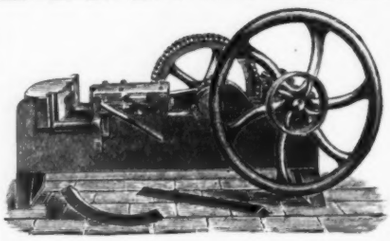

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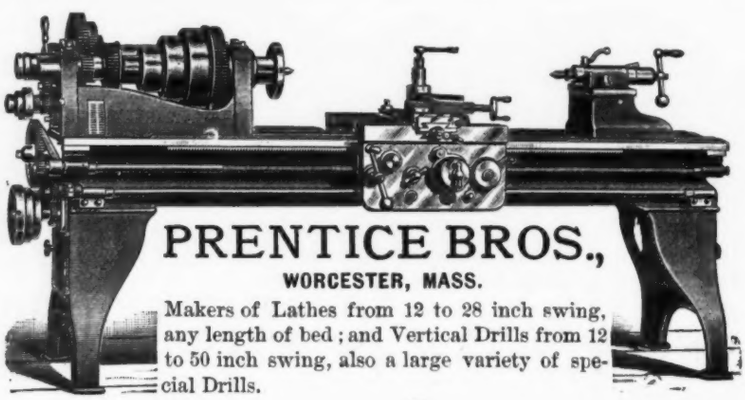

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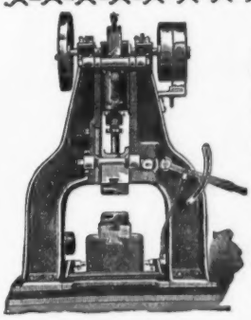

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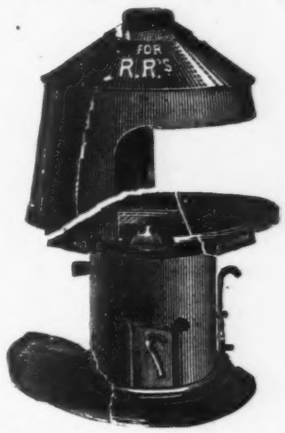

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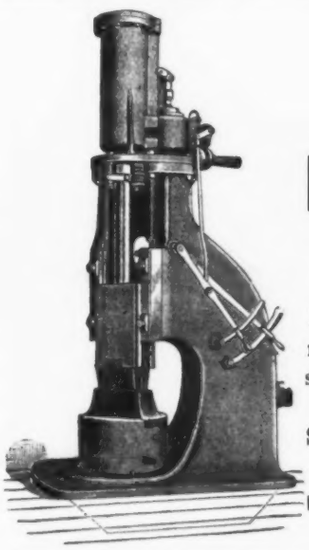

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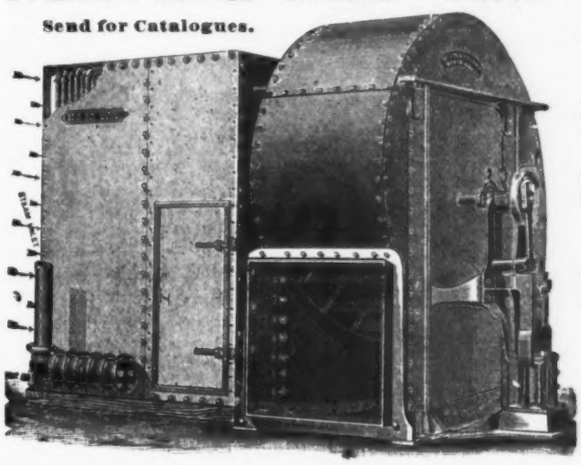

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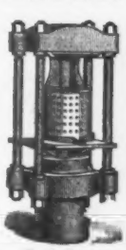

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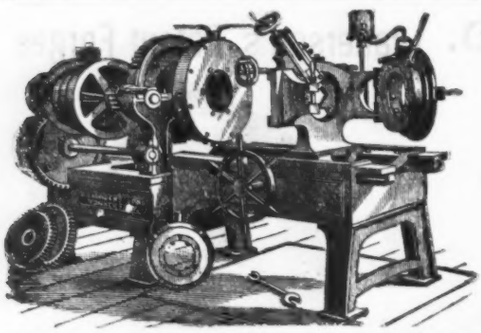

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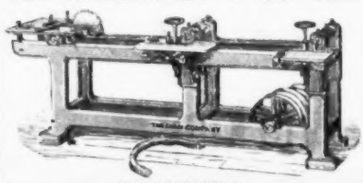

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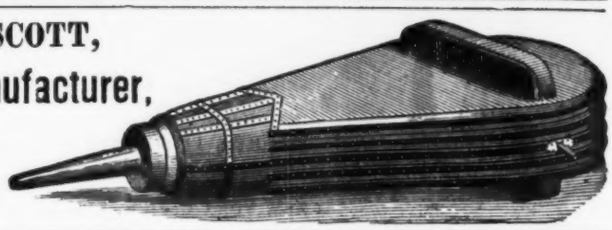

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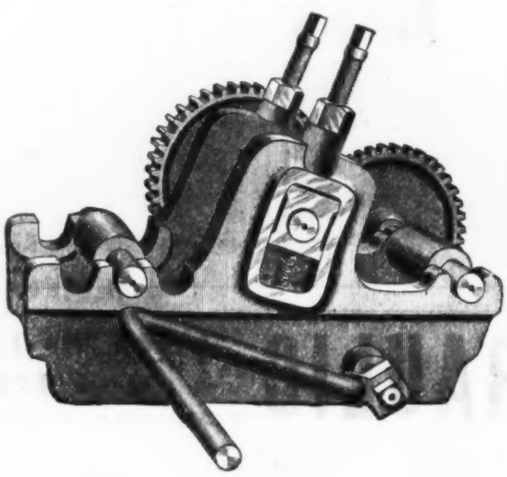

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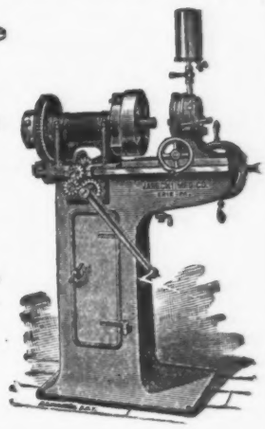

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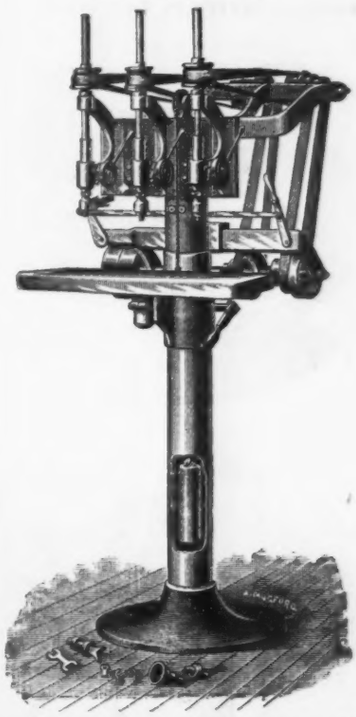

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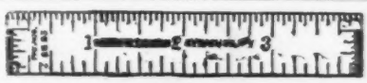

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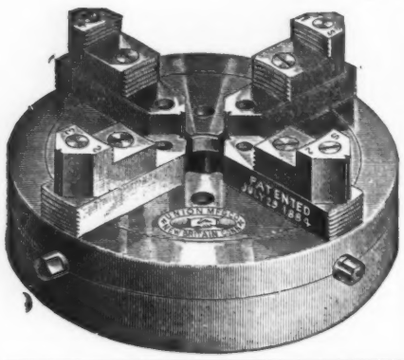

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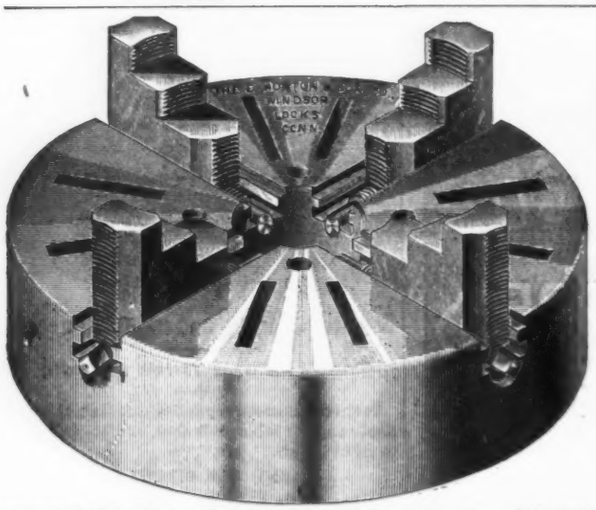

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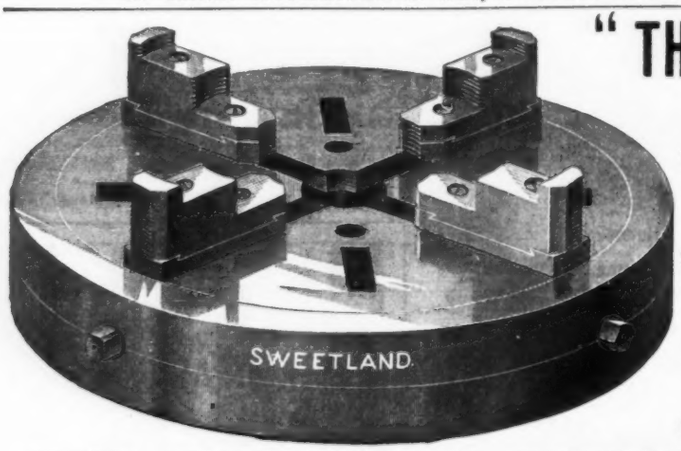

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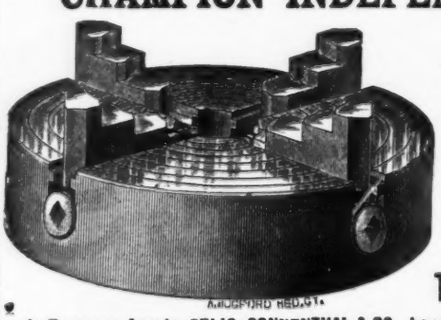

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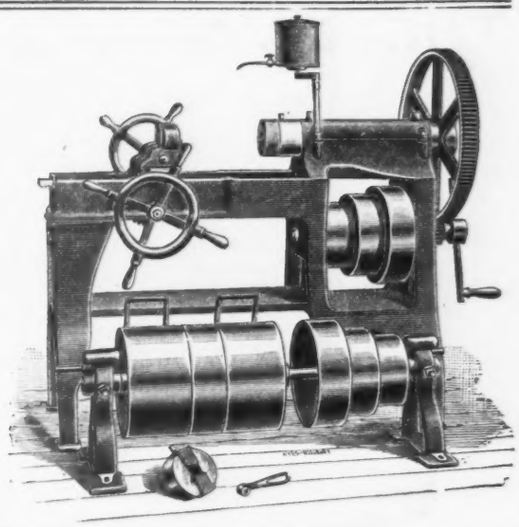

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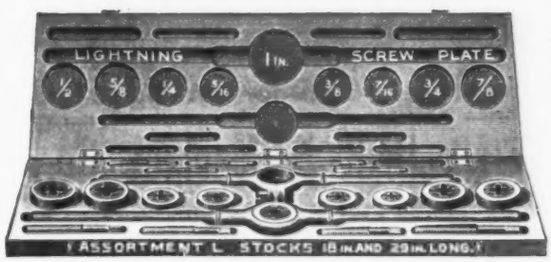

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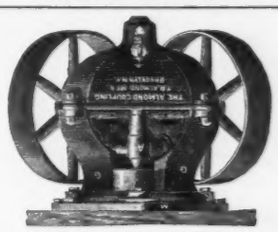

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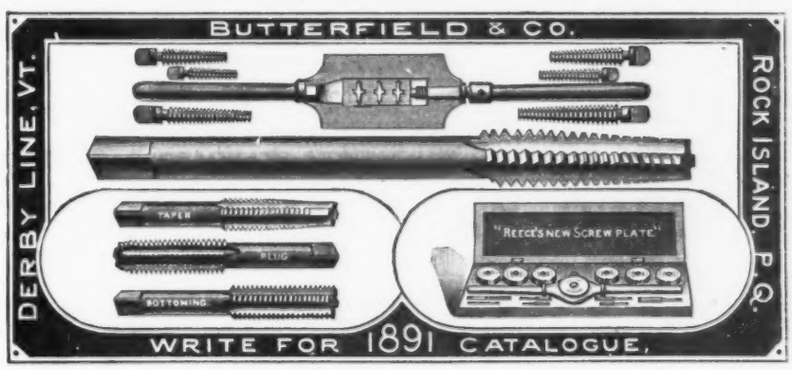

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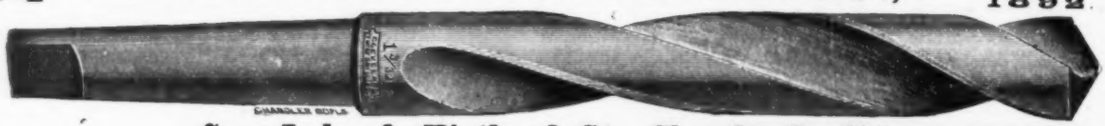

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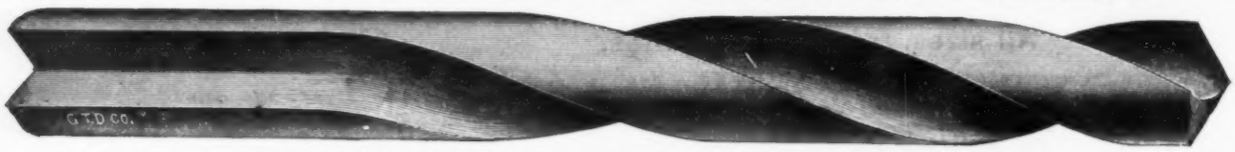

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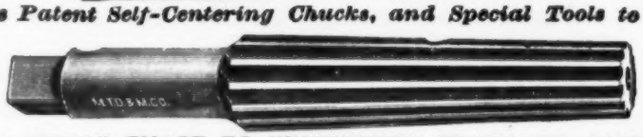

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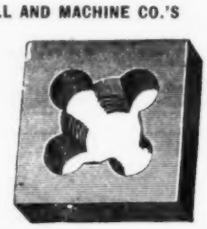

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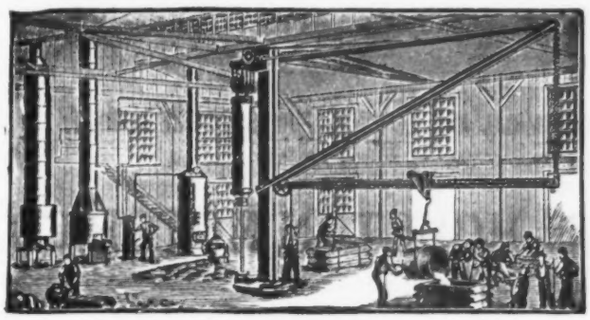

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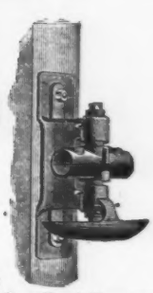

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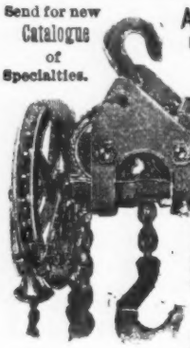

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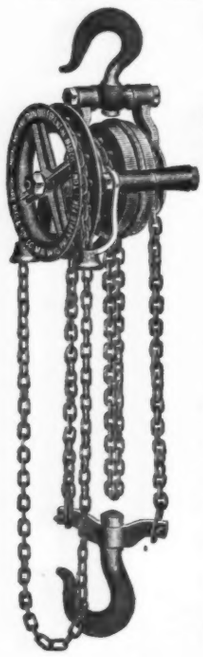

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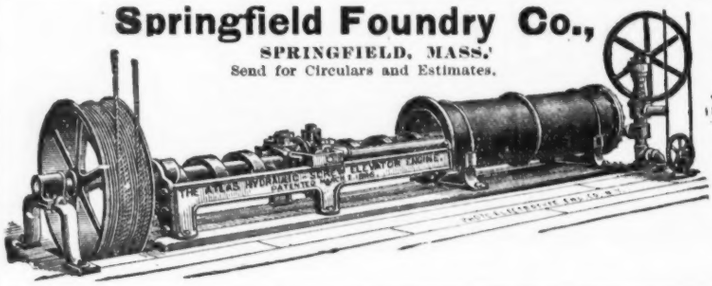

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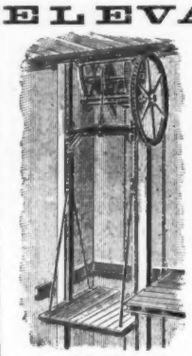

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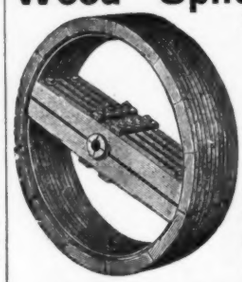

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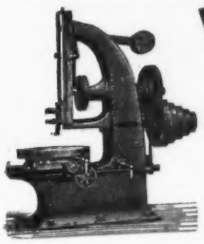

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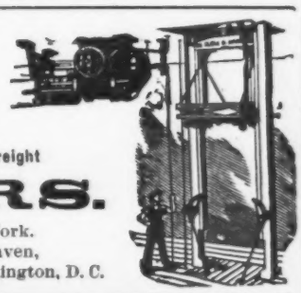

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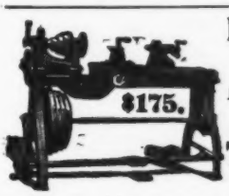

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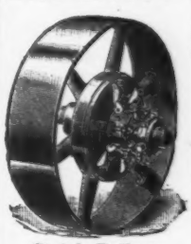

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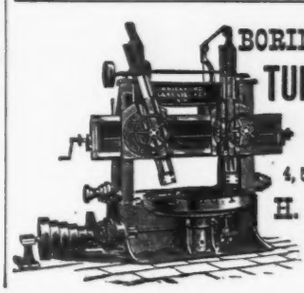

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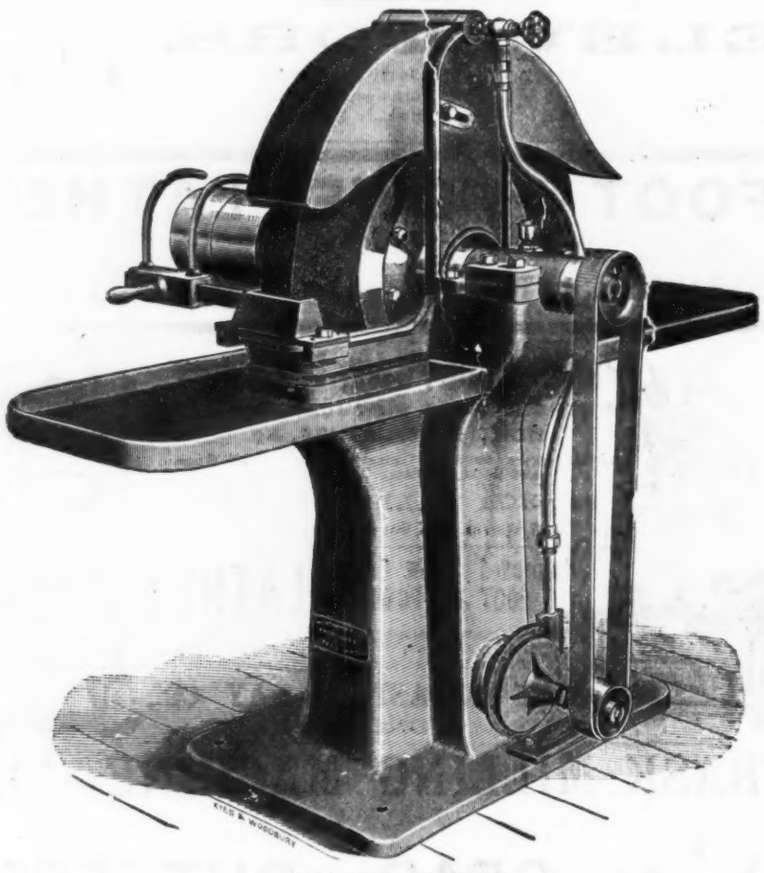

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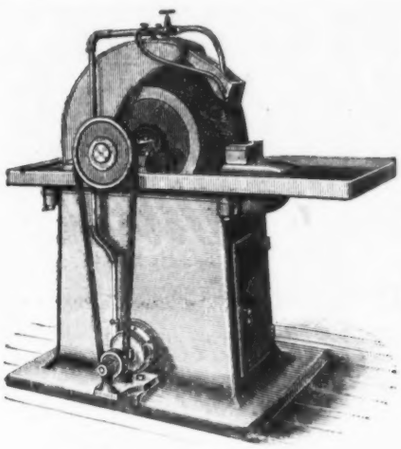

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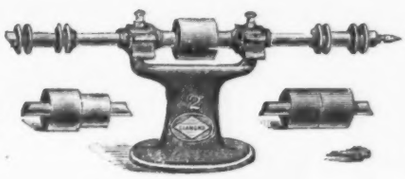

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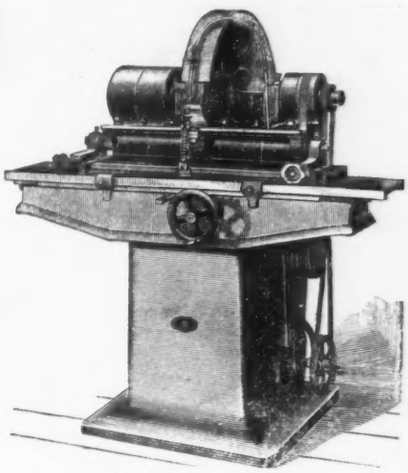

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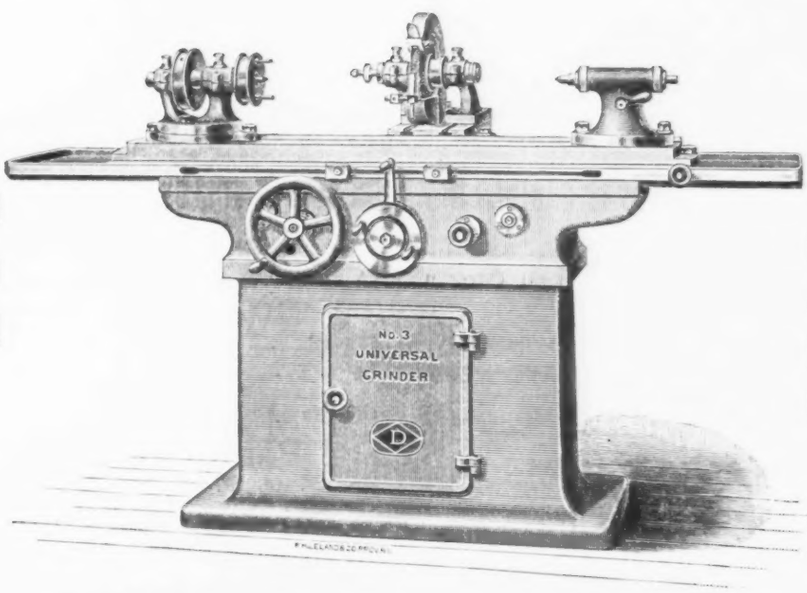

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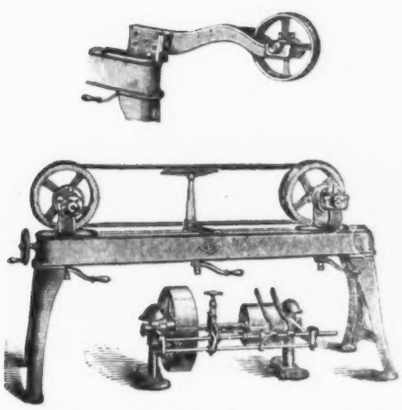

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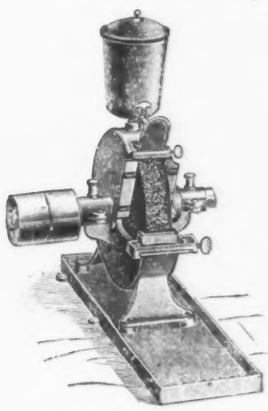

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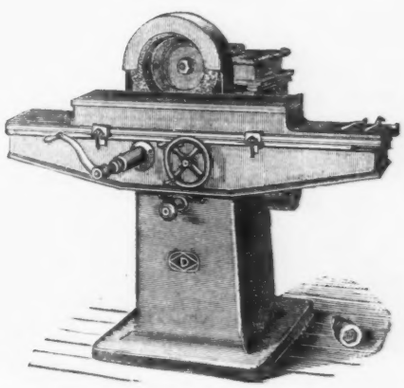

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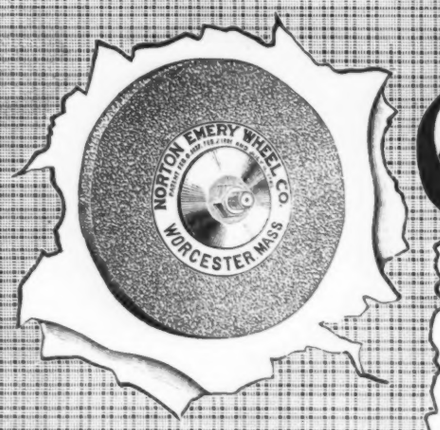

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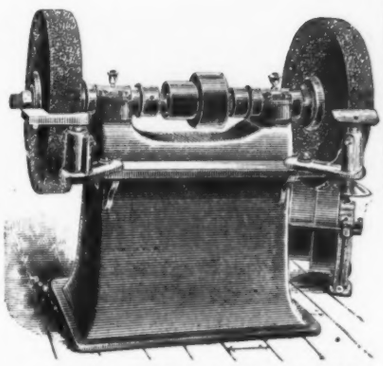

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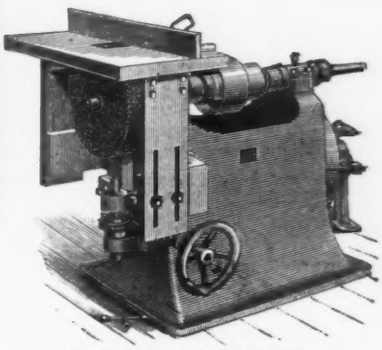

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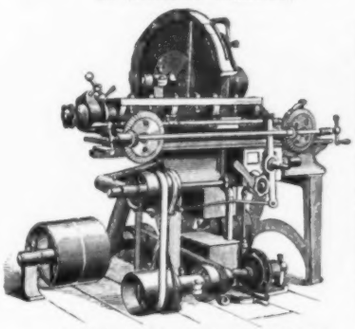

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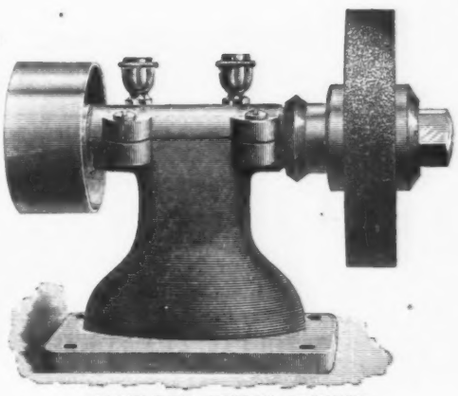

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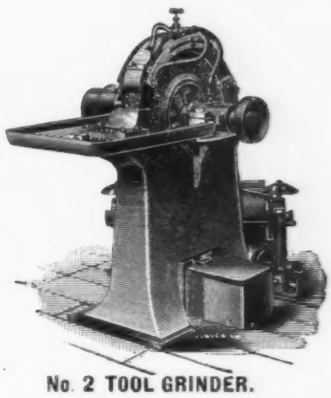

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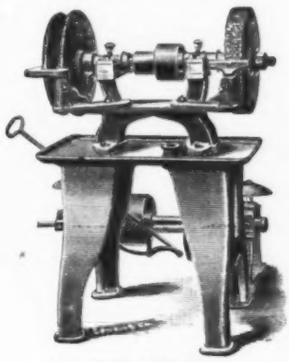

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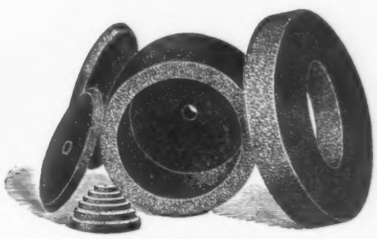

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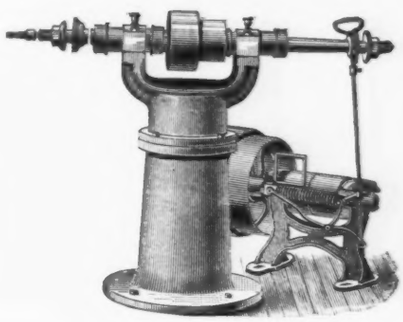

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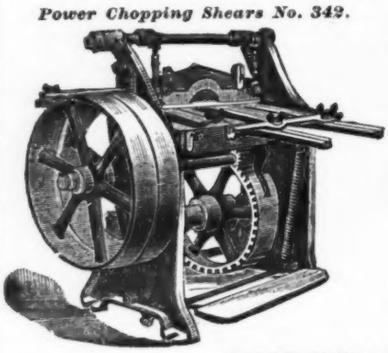

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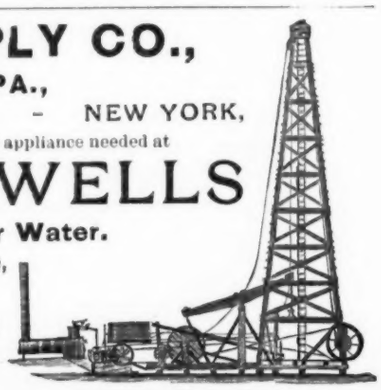

ROOT'S HANDY CLOTH-BOUND HARDWARE PRICE CARDS.

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THESE cards cover the lines having a large variety of sizes or numbers, save marking each package or article, in Retail stores, and are convenient for use in Wholesale Sample Rooms. They secure correct and uniform selling prices, for large and small buyers, save time, and are intended for years of constant use. Hence, no hardware dealer can afford to do without them, or spend the time to write and rule out cards by hand. They are printed in distinct type on the best paper, appropriately ruled with blue cross lines and red down rulings, for noting in pencil—List, Cost, Jobbing and Selling prices—as in specimen headings, shown herewith. Card A is mounted one side and B the other side of a tough, heavy card board, especially adapted for this use, protected on the edges by being *cloth-bound*, which saves framing. Two-thirds of them are 3 x 13½ inches. This size has been found convenient for hanging on a pilaster finish, or on any narrow surface, without hiding the goods. To hang or chain up each card, there is firmly inserted through the nickel-plated eyelet about ⅝ inch inside diameter. The comparative numbers of the different makers of cabinet and padlocks, rules, levels, etc., have been carefully corrected to the date of issue and many numbers added. Most houses require 6 to 12 cards extra, of each **Nos. 32 and 33**, to price lines not covered by the other numbers.

PIECED WARE. [Card No. 26-A.]

DESCRIPTION.	Size or No.	List.	Cost.	Job.	Sell.
BOILERS.					
COFFEE,	7 in.				
Bailed and	8 "				
Copper Bottom.	9 "				

DESCRIPTION AND PRICES.

Card No.		Size and Price per Card.
1	**A—Bar Iron,** Weight of Round, Square and Flat, per Foot and Tire per set. Western Classification and Prices of Extras on American, Norway and Swedes. **B—Bar Steel,** All kinds and Sizes with Prices of Extras. Horse and Mule Shoes, Size, Weight, No. in Keg. Toe Calks. Cut Nails, List of Extras.	5½x18 in. 40 Cts.
2	**A—Cut Tacks,** exact size cuts. Length. Number in a lb. **B—Large Head Carpet Tacks.** Gimp and Lace Tacks. Hungarian Nails, Hob Nails, Blued and Tinned, American and Swedes. Exact size cuts shown of all the above.	3x13½ in. 30 Cts.
3	**A—Shoe Nails.** Cigar Box Nails. Copper Tacks, Double-Pointed Tacks and Cuts, Glaziers' Points and Cuts. Barbed Blind Staples. **B—Patent Brads.** Finishing Nails. Blued Clout Nails. Tinned Clout Nails.	3x13½ in. 30 Cts.
4	**A—Iron Wood Screws.**	6x16 in. 35 Cts.
5	**B—Iron Wood Screws** (contd.) Iron Machine Screws.	
6	**A—Standard Carriage Bolts.**	3x13½ in. 30 Cts.
7	**B—Standard Carriage Bolts** (continued.) Plow Bolts.	
8	**A—Machine Bolts.** **B—Standard Tire Bolts.** Round and Flat Head Stove Bolts.	3x13½ in. 30 Cts.
9	**A—Philadelphia Carriage Bolts.** **B—Philadelphia Carriage and Tire Bolts.**	3x13½ in. 30 Cts.
10	**A—Square and Hexagon Nuts.** Wrought Washers. Size of Bolt, size of Hole, Width, Thickness, number in 100 lbs. **B—Coach or Lag Screws.** Superior and Norway Axle Clips.	3x13½ in. 30 Cts.
11	**A—Bright Screw Hooks.** Belt Hooks. Blake's Belt Studs. **B—Bright Screw Eyes.** Gate Hooks and Eyes. Cornice Hooks and Eyes.	3x13½ in. 30 Cts.
12	**A—Plate Casters and Bed Casters.** **B—Wrought Hooks and Staples.** Trap Door Rings. Hasps and Staples, and Staples only.	3x13½ in. 30 Cts.
13	**A—Saws.** Hand, Panel and Rip. Combination and Back. Disston's and W. M. & C.'s corresponding numbers and "Our Brand." **B—Saws.** Back, Compass, Pruning, Kitchen, Butchers' Bow and Blades. Framed Wood Saws and Blades.	3x13½ in. 30 Cts.
14	**A—Chisels.** Slicks, Socket Framing, Socket and Tanged Firmer, Corner. **B—Turning Chisels and Gouges,** Socket and Tanged Firmer Gouges	3x13½ in. 30 Cts.
15	**A—Cast Steel Augers and Bits.** Boring Machine Augers. Jennings' Auger Bits. **B—Bit Stock Drills,** Gimlet Bits, German Pattern, Double Cut and Countersink. Center Bits. Clark's Expansive Bits.	3x13½ in. 30 Cts.
16	**A—Hammers.** Adze Eye, Bell Face, Joiners', Steel Face and Claw, Riveting, Farriers', Blacksmiths', Machinists', Engineers. **B—Hammers.** Tack, Masons', Sledges, Miscellaneous. **Hatchets,** Shingling, Lath, Half, Claw, Broad or Bench, Hunters'.	3x13½ in. 30 Cts.
17	**A—Files.** Bastard, Mill, Flat, Hand, Half-round, Round, Square, Knife, Warding. Second Cut, Mill, Flat, Hand, Half-round. Smooth, Flat and Hand. **B—Files.** Smooth, Half-round, Round, Cabinet, Pit Saw, Hook Tooth, Gin Saw, Band Saw, Cant, Taper, Stubb's Taper. **Rasps,** Cabinet, Wood, Shoe, Horse.	7x15 in. 40 Cts.
18	**A—Rubber and Hemp Packing.** Gaskets or Rings. Rubber Hose. **B—Leather and Rubber Belting.**	3x13½ in. 30 Cts.
19	**A—Window Glass.** List Prices and Number Lights in a Box. Also ruled columns for other Wholesale and Retail rates. **B—Sash, Doors and Blinds.** List Prices.	6x18½ in. 40 Cts.
20	**A—Hinges.** Strap, Light and Heavy. T, Light, Heavy and Extra Heavy. Hinge Hasps, Screw Hook and Strap. **B—Screw Hook and Eye Hinges.** Barn Door Hangers. Checked Back. Kidder's, Anti-Friction, Wrought Frame. Barn Door Stay Rollers, Rail, Pulls, Latches Sliding Door Rail.	3x13½ in. 30 Cts.
21	**A—Wrought Butts.** Narrow, Loose Pin, Light Inside Blind. **B—Loose Pin Butts.** Plain, Japanned and Plated Tips.	3x13½ in. 30 Cts.
22	**A—Loose Joint Butts,** Plain, Japanned and Plated Tips. **B—Table Hinges,** Bronzed Iron Blind Butts. Brass Butts, Narrow, Middle, Broad and Desk. Width when open, given of all.	3x13½ in. 30 Cts.
23	**A—Door Bolts,** Barrel, Square Spring, Foot, Chain. **B—Door Bolts.** Flush, Neck and Miscellaneous kinds.	3x13½ in. 30 Cts.
24	**A—Screw Drivers,** Flat and Round Blade, Ratchet, Clark's. Screw Driver Bits. Countersinks, Reamers', Belt or Saddlers' Punches. **B—Rules. Wrenches.**	3x13½ in. 30 Cts.

Card No.		Size and Price per Card.
23	**A—Hooks,** Coat and Hat, Wardrobe, School-house, Harness, Clothes-line. **B—Shelf Brackets. Drawer Pulls.**	3x13½ in. 30 Cts.
24	**A—Wood Planes.** Plane Irons, Cut and Double. **B—Patent Planes.** Patent Plane Irons.	3x13½ in. 30 Cts.
25	**A—Woodenware and Baskets.** Alphabetically arranged. **B—Woodenware** (contd.) Alphabetically arranged.	7x22 in. 50 Cts.
26	**A—Pieced Tinware.** Alphabetically arranged. **B—Stamped Tinware.** Alphabetically arranged.	7x22 in. 50 Cts.
27	**A—Japanned Tinware.** Alphabetically arranged. **B—Granite or Agate Ironware.** Planished Ware. Stove and Hollow Ware. All Alphabetically arranged.	7x22 in. 50 Cts.
28	**A—Mortise Door Locks,** Latches, Knobs and Escutcheons. **B—Rim Door Locks,** Latches, etc. **A—Padlocks,** Japanned, Wrought Iron, Bronzed Iron, Brass and Jail.	7x22 in. 50 Cts.
29	**B—Complete Comparative List of Corresponding Numbers of Padlocks,** Mallory, Wheeler Co., Wm. Wilcox Mfg. Co., Russel & Erwin Mfg. Co., Norwich Lock Mfg. Co., Nimick & Brittain Mfg. Co. Revised to July, 1885.	6½x22½ in. 50 Cts.
30	**A—Cabinet Locks,** Drawer, Chest, Cupboard and Trunk. Cabinet Keys. **B—Complete Comparative List of Corresponding Numbers of Cabinet Locks,** Eagle, Corbin, Parker, Gaylord. Revised to July, 1885.	7x24 in. 50 Cts.
31	**A—Length and number of Nails to the pound.** Number of feet in a bundle of Hoop, Scroll and Band Iron. Number of feet of Wire in a pound. Coil or Cable Chain, weight per 100 feet and proof in tons. Bright Coil and Halter Chain and corresponding No. of Wire. Sash weights and line required for common sized window. **B—Miscellaneous Tables.** Showing Number of Copper Rivets and burs in a pound. Size of Skates compared with Shoes. Scale Beams, poise or weight needed for each. Brass Kettles, size, weight and capacity. Strap and T Hinges, weight and number packed in a barrel. Comparative Nos. of leading makers of Rules and Levels. Revised to July, 1885. Manilla Rope, feet in a pound, weight of coils, breaking strain, etc.	6x22 in. 50 Cts.
32	Is adapted for filling in with any line of goods. It is ruled both sides with columns headed respectively—"Description," "Size or No.," "List," "Cost," "Job," "Sell."	4x14 in. 20 Cts.
33	As No. 32, but half size, for *smaller* lines of goods.	4x7 in. 10 Cts.
34	**A—Wire Nails,** Exact Size Cuts. **B—Wire Nails,** List Prices and Number in a pound.	5½x9½ in. 25 Cts.
35	**A—Gas Pipe,** Black and Galvanized. List Prices, Weight per foot and number threads per inch of screw. Also Malleable Pipe Fittings *illustrated*. **B—Is** ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 25 Cts.
36	**A—Tin Plates and Metals.** Sizes of Tin, Number of Sheets in Box, Weight and Gauge. Block Tin, Lead, Solder, Antimony, Slab and Sheet Zinc. **B—Sheet Iron and Copper.** Iron, Common, Smooth, Galvanized, American and genuine Russia. Copper, Sheathing, Planished and Copper Bottoms and Soldering coppers.	5½x9½ in. 25 Cts.
37	**A—Malleable Iron.** *Illustrated.* Whiffletree Ferrules, Tongues, Hooks, Couplings and Plates. T and Shaft Irons. Shaft, Body, Perch and Neck-yoke Loops. **B—Malleable Iron.** *Illustrated.* Pole and Neck-yoke Tips. End or Tail Board Plates. Washers and Nuts. Stake Rings and Irons. Wagon Box Spring Irons. Check and Footman Loops. Corner Irons. Spring and Axle Blocks.	5½x18 in. 35 Cts.
38	**A—Malleable Iron.** *Illustrated.* Axle Yokes. Wear Irons. Wrenches. Carriage Rim Bands. Oar or Row Locks. **B—Malleable Iron.** *Illustrated.* Step Plates, Carriage, Wagon and Cutter Steps. Thumb Nuts. Sand Bands.	5½x18 in. 35 Cts.
39	**A—Handles.** *Illustrated.* Auger, Cross-Cut Saw, Axe, Adze, Hatchet, Hammer, Pick, Sledge. **B—Is** ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 25 Cts.
40	**A—Wire Cloth and Netting.** *Illustrated.* Plain, Painted and Galvanized. **B—Is** ruled similar to No. 32, and is adapted for any line of goods.	5½x9½ in. 25 Cts.

Less than a Set Priced at the above Rates.

PRICES IN SETS.—**Set No. 1** includes all the numbers, 1 to 40 inclusive, price, **$10.00 per Set. Set No. 3**—Especially designed for Dealers in **Tinware and House-Furnishing Goods,** consists of Cards Nos. 25, 26, 27, price, **$1.20 per Set. Set No. 5**—For Dealers in **Iron, Hardware, Tinware, and House-Furnishing Goods,** includes 6 cards Nos. 32 and 33 and 1 each 1, 2, 5, 6, 8, 11, 12, 13, 15, 18, 19 26, 27, price, **$5.00 per Set.**

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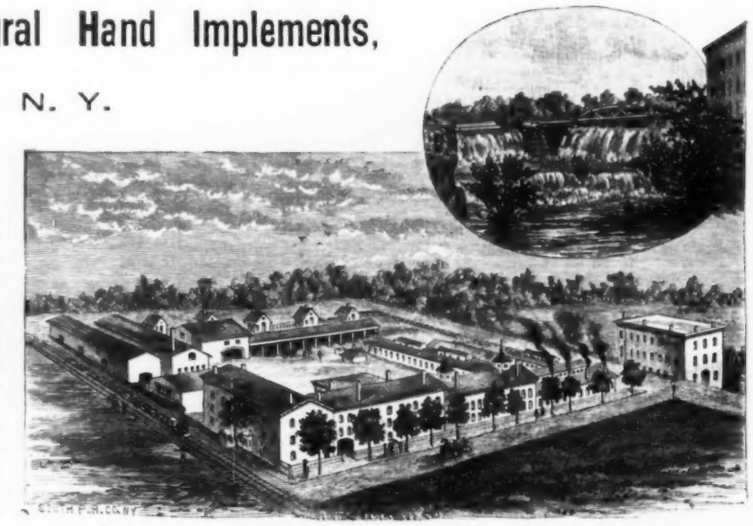
Manufacturers of Agricultural Hand Implements,

AUBURN N. Y.



The Stockholders of this Company have decided to offer its manufacturing plant and machinery for sale.

The buildings surround a hollow square of several acres in extent, as shown in accompanying cut. The main buildings are substantially constructed of stone and brick, thoroughly equipped with fire extinguishing apparatus, and cover the entire frontage of the property, 350 feet.

It has magnificent water privileges, 300 Horse Power, supplemented by a modern Steam Plant of 250 Horse Power added in 1888, but scarcely used since then, as Water Power has been ample. Steam plant is in perfect condition.

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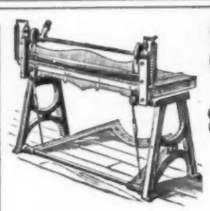

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Sheet Metal Working Machinery a specialty.

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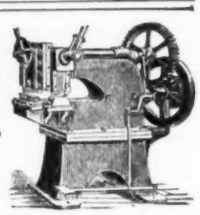

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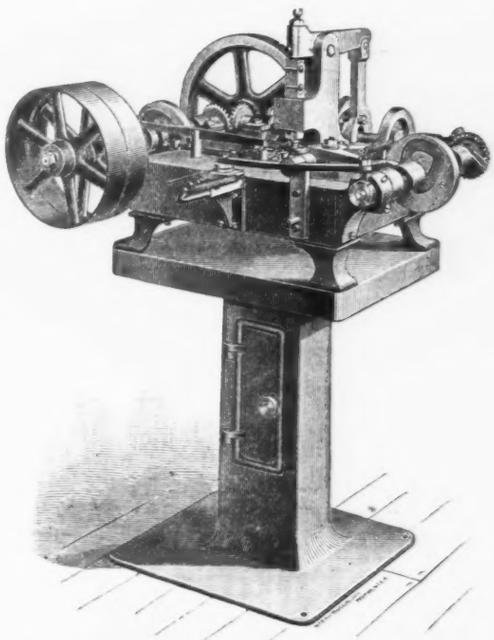

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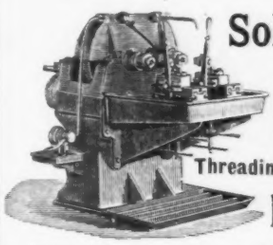
Small moulded work a specialty. Send for estimates for moulds and work.



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Will do more accurate **BOLT THREADING** than any machine made.
Changes from one size to another can be made in one minute.
No complicated head to get out of order.

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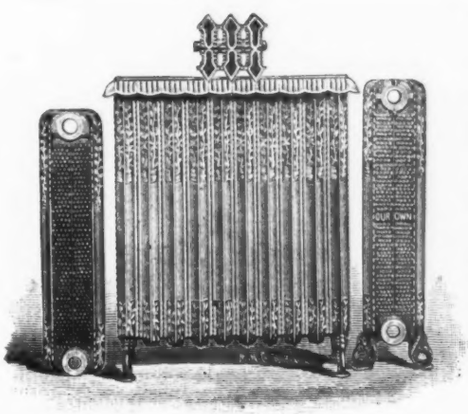

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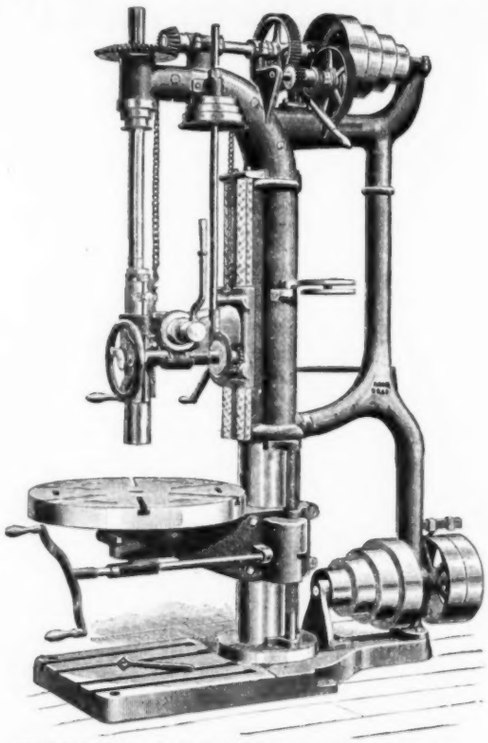

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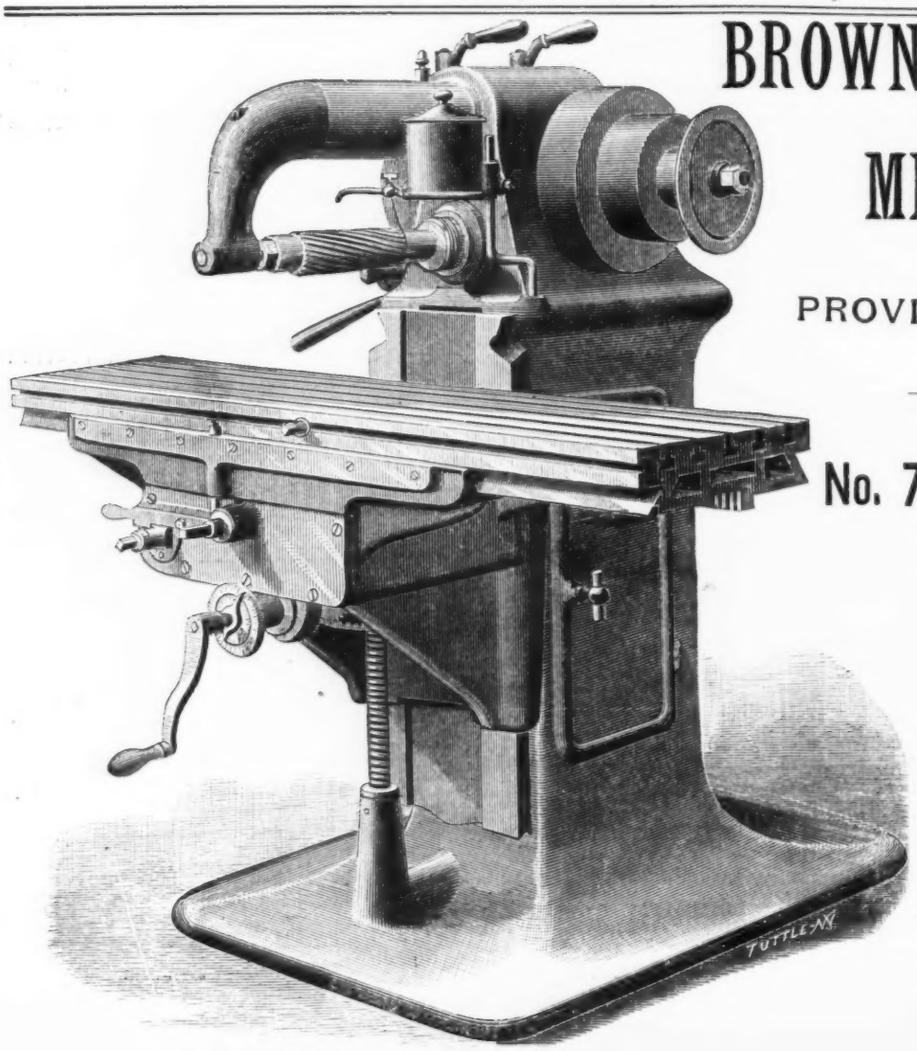

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Length of table, 72 inches.

Width of table, 14 1-2 inches.

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For Sale at low Figures.

1 Heavy Shear, to cut 1 in. x 6 in. Bement.
1 " Punch, to punch 1 in. x 1 in Bement.
1 Double Punch and Shear, punch ¾ in. x ¾ in., shear 6 in. x ¾ in. Long & Allstatter.
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1 30 x 30 x 6 Iron Planer, Sellers.
1 20 x 20 x 4 " " "
3 18 x 8 Lathes, Lathe & Morse.
1 36 x 36 x 16 Planer, Whitcomb.
1 36 x 36 x 24 " "
1 52 x 36 x 12 " Rochester.
1 27 x 12 Lathe, New Haven.
1 36 x 20 " Perkins
Lathes, Shapers, Planers, Drill Presses, Milling Machines. All sizes.

We have the following new tools for immediate delivery.

16 in. Tool Room Lathes.
18 in. x 6 ft. and 8 ft. Standard Engine Lathes.
19 in x 9 ft., 11 ft. and 13 ft. Standard Engine Lathes.
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14 in. x 6 ft. and 8 ft. Plain Engine Lathes.
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24 in. x 10 ft., 12 ft. and 14 ft. " " "
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36 in. x 36 in. x 8 ft., 10 ft. and 12 ft. Planers, Double Head.
20 in., 24 in., 28 in. and 32 in. National Drills.
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Universal and Plain Milling Machines.
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Fitchburg Machine Works, "New Heavy Patterns," 14 in. x 6 ft., 16 in. x 6-8 ft., 18 in. x 8 ft., Plain and Taper.
Fitchburg Machine Works, 21 in. x 10 ft., 24 in. x 12 ft 28 in. x 14 ft., 36 and 48 in. Swing, Triple Geared.
Hendey Machine Co., "New" 14 in. x 6 ft., 16 in. x 6-8 ft., 18 x 6-8-10 ft. Plain and Taper.
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Perkins "New" 21 in. x 10 ft., 24 in. x 12 ft.
Ames "New" 13 in x 6 ft. Special low price.
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Pratt & Whitney, 2d-hand 20 in. Good order.
Ames 2d hand 24 in. Complete. " "
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Old Style, 8 in. stroke. Good order. Cheap.
Hewes & Phil., 9in. "Heavy" "
Fitchburg, 14 in. " New Traveling Head Complete.
New pattern, 15 in. stroke, Crank Motion.
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Jones & Lamson, 15-16 in. Back Gears. Auto. Feed. Chuck and Tools. A1 order.
Brown & Sharpe No 5, with Chasing-bar. Good order.
Jones & Lamson, 2¼ in. Clutch Gears. Automatic Feed. Chuck and Tools A1 order.
Upright Horizontal Boring and Turning Mills.
Large Size Side Drilling and Boring Mill. Vertical Traverse 14 ft. Horizontal Traverse, 26 in. Table, 4 x 14 ft. Good order.
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Nicholson & Waterman Latest Pattern, Horizontal Mill, 40 in. x 10 ft. Good as new.
New Pattern Upright Boring and Turning Mill, 38 in.

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Slotter 8 in. stroke. Modern Style Good order.
Centering Machine, Whiton. Good order
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FOR SALE.—New Hoisting Engines. Immediate delivery.

1 7 in. x 10 in. Hor. Hoisting Engine. Double cylinder, double drum with boiler and attachments. (Mundy Friction.)
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1 6 in. x 6 in. Vertical Hoisting Engine without boiler (Mundy Friction.)

L. F. SEYFERT'S SONS.
437-441 N. 3d St., Philadelphia, Pa.

MACHINERY IN STOCK.

Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in. x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 23 ft., triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

Taper Engine Lathes, 14, 16 and 18 in. x 6, 8, 10, 12 ft.; 20, 24, 28, 30 in. x 10, 12, 16 and 20 ft.

Square Arbor Fox Lathes, 14 in. x 5 ft.; 15 in. x 6 ft; 18 in. x 6.

Fox Monitor Lathes, 14 in. x 6 ft.; 15 in. x 6 ft.; 16 in. x 6 ft., 18 x 6.

No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
No. 3, 4, 5, 6 Power feed " " "
No. 5 and 6 " " " " clutch back gear.

20, 22, 24, 28, 30, 32, 36, 38, 40 and 45 in. Drill Presses.

Crank Shapers, 6 in., 8 in., 10 in., 12 in., 15 in., 16 in., 17 in., 20 in., 24 in., 28 in., adjustable stroke.

Friction Shapers, 15, 16, 20, 22, 30, 32 in.

Iron Planers, 16 in. x 16 in. x 3 ft.; 20 in. x 20 in. x 4 ft.; 24 in. x 24 in. x 6 ft. and 8 ft.; 30 in. x 30 in x 6, 8, 10 and 12 ft.; 36 in. x 36 in. x 12 ft.; 44 in. x 48 in. x 22 ft. 6 in.; 52 in. x 50 in. x 17 ft.; 72 in. x 60 in. x 15 ft. and 60 in. x 49 in x 24 ft.

C, D and E Horizontal Boring Machines, Newark Machine Tool Co.
50 in. Single Head Boring and Turning Mill.
72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-hand.
60 in. Vertical Boring Mill. Second-hand. L. W. Pond.

Send for list of new and second-hand Machinery.

PRENTISS TOOL & SUPPLY CO.,
115 Liberty Street, New York.
59 So. Canal St., Chicago.

No 8 Dallett Portable Drill, virtually new..... $165.00
18 in. x 8 ft. Engine Lathe. In good order..... 165.00
24 in. x 16 ft. Putnam Lathe..... 275 00
30 x 24 ft. N. H. Lathe..... 350.00
27 in. x 24 in. x 7 ft. Planer. Almost new..... 525.00
24 in. x 20 in. x 6 ft. Planer and Chuck. New.. 380.00
34 in. Barnes' Drill, Bk. Gd Sf. Feed. New..... 275.00
28 in. " " " " " " 245.00
1¼ in. New Acme Head Bo't Cutter..... 185.00
No. 1 Power Punch Press, Wt. 850 lbs. New.... 100 00
Engines, Boilers, Pumps, Shafting, Hangers and Machinery.

AMER. TOOL WKS., Cleveland, O.

SECOND-HAND

MACHINISTS' TOOLS.

1 Planer, planes 16 ft. long, 62 in. x 62 in.
1 Planer, New Haven, planes 9 ft. long, 36 in. x 36 in.
1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 5 ft 24 in. x 24 in.
1 Engine Lathe, 16 ft. bed, 34 in. swing, for Boring and Turning.
1 Engine Lathe, 10 ft bed, 22 in. swing. Fair.
1 9 ft. bed, 24 in. swing Engine Lathe. Good.
1 Engine Lathe, 14 ft. bed, 18 in swing. A1.
6 Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 48 in. Vertical Boring Mill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 475 lbs. Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¾ in.
And various other tools.

New York Machinery Depot,
Bridge Store No. 16, on Frankfort St., New York

GEORGE B. EDDY.

Second-hand Machinery.

Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

FOR SALE.

Wright Engine 12 in. x 32 in.
Porter & Allen Engine 12 in. x 20 in.
F. McSWEGAN,
Dover Street and Franklin Square New York.

RARE CHANCE.

A MACHINE SHOP

OF

Second-Hand Tools

For Sale SINGLY.

MOSTLY FITCHBURG TOOLS.

ADDRESS

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PHILADELPHIA, PA.

N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

14 in. x 6 ft. Engine Lathe, screw front, double T rest.
15 in. x 4 ft. Engine Lathe, screw back, double T rest.
15 in. x 6 ft. Engine Lathe, screw back, gauge attachment.
16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest
16½ in x 6 ft. Engine Lathe, screw front, compound rest
17 in x 7 ft Engine Lathe, screw back, plain rest.
17 in x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17½ in. x 4 ft. Engine Lathe, screw back, double T rest.
17½ in x 8 ft. Engine Lathe, screw front, elevating block.
17½ in x 8 ft. Engine Lathe, screw front, double T rest.
18 in x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
21¾ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in x 10 ft. Engine Lathe, screw back, double T rest, cross feed
22 in. x 10 ft. Engine Lathe, screw front, double T rest.
25 in x 14 ft Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1¾ in. holes with 12 in diam. 3-jaw combination chuck.
13 in x 6 ft, Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 44 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

PENNSYLVANIA MACHINE CO., Ltd.,
31 N. Seventh St., Philadelphia, Pa.
(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

11 Rail, Bar, Sheet and Clipping Shears.
6 Clay and Ore Pans.
21 Hoisting Engines.
40 Stationary and Portable Boilers.
44 Stationary and Portable Engines.
12 Steam, 9 Centrifugal and 2 Belt Pumps.
3 Air Compressors.
Two Standard Gauge Locomotives.
One 3 foot Gauge Locomotive.

THOMAS CARLIN'S SONS,
Allegheny, Pa.

DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¼ x 10 in., with Double Drums Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

FRANK TOOMEY,
131 North 3d St., Philadelphia, Pa.

New Machinery in Stock.

Lathes.

1 33 in. x 16 ft. Fay & Scott. Compound Rest.
1 28 in. x 12 ft. " " " "
1 24 in. x 24 ft. Forsaith. Compound Rest.
1 24 in. x 12 ft. Dexter. Compound Rest.
1 24 in. x 10 ft. Forsaith. Complete.
1 24 in x 10 ft. Dexter. Compound Rest.
1 22 in. x 12 ft Fifield. Compound Rest.
1 21 in. x 12 ft. Dexter. Compound Rest.
1 20 in. x 13 ft. Hubbard. Compound Rest.
1 20 in. x 8 ft. Forsaith Compound Rest.
1 18 in. x 12 ft. Dexter. Compound Rest.
1 18 in. x 6 ft. Forsaith. Compound Rest.
1 17 in. x 6 ft. Forsaith. Complete.
1 16 in. x 8 ft. Dexter. Power Cross Feed.
1 16 in. x 8 ft. Blaisdell. Raise and Fall Rest.
1 16 in. x 8 ft. Porter. Complete.
1 16 in. x 6 ft. Blaisdell. Raise and Fall Rest.
1 16 in. x 6 ft. Dustin & Hubbard. Complete.
1 16 in. x 6 ft. Dexter. Power Cross Feed.
1 16 in. x 6 ft. Porter. Complete.
2 15 in. x 6 ft Porter. Complete.
1 14 in. x 6 ft. Sebastian-May.
1 14 in. x 6 ft. Prentice. Complete.
1 12 in. x 5 ft. Sebastian-May.
2 10 in. x 4 ft. Reed. Complete.
1 13 in x 5 ft. Speed Lathe.
4 10 in. x 4 ft. Speed Lathes.
1 9 in. x 43 in. Star Lathe, Foot or Steam Power.
1 9 in. x 54 in. Star, Foot or Steam Power.
2 8 in. x 36 in. Foot Lathes.

Planers.

1 36 in. x 30 in. x 12 ft. Davis.
1 30 in. x 30 in. x 8 ft. Davis.
1 24 in. x 24 in. x 6 ft. Davis.

Drills.

9 42 in. Davis, B. G. & S. F.
1 28 in. Blaisdell, B. G. & S. F.
1 28 in. Snyder.
20 25 in. Davis, B. G. & S. F.
1 25 in. Snyder.
1 24 in. Schumaker, B. G. & S. F.
1 24 in. Blaisdell, B. G. & S. F.
15 20 in. Davis, Standard.
4 20 in. Davis, B. G.
1 16 in. Bench Drill.
2 12 in. Davis. Semi-Sensitive.
2 Woodward & Rogers.

Shapers.

1 20 in. Juengst, Friction.
1 20 in. " Crank.
1 15 in. " Friction.
1 15 in. " Crank.
1 45 in. Davis Crank.
1 12 in. Boynton & Plummer.

Milling Machines.

1 No. 4½ Garvin.
1 No. 3 Garvin.

Cutting-off Machines.

1 each 3 and 4½ in. Davis.

W. P. DAVIS,
Rochester, N. Y.

See list of Second-hand Machinery next issue.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spining Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 10 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,

143 Liberty Street, N. Y. City.

BARGAINS FOR CASH.

Write for Prices.

1 53 in. x 30 ft. Second-hand Lathe.
1 50 in. x 22 ft. " "
2 No. 9 Pulsometer Pumps.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second hand.
1 12½ x 24 " "
1 8 x 16 " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 No. 1 Root Blower.
1 2 H.-P. Shipman Oil Engine.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " "
2 42 in. x 11 ft. " Boilers "
1 1 H.-P. Acme Oil Engine.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " "
1 4 H.-P. Baxter Engine and Boiler.
1 15 H.-P. Shapely " "
2 34 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 90 H.-P. Horizontal Engines and Boilers. New and Second Hand.
1 20 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft. Porter Lathe. New.
1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

LOVEGROVE & CO.,
Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in. swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,
156 Oliver Street, Boston, Mass.

FOR SALE.

4 Horizontal Tubular Boilers, 100 H.-P.
2 " " " 54 in. diam. x 16 ft. long.
1 16 x 30 Fishkill Landing Engine.
1 16 x 42 Automatic Cut-off Engine.
1 No 9 Sturtevant Exhauster.
1 No. 10 Boggs & Clarke Centrifugal Pump.
A large lot of Pulleys, 4 to 9 ft. diam., 1 to 27 in. face.

D. B. CRUIKSHANK, 243 Dyer St., Providence, R. I.

Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,
123 N. Third St., Philadelphia.

50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

THE SCRANTON SUPPLY AND MACHINERY CO.,
Scranton, Pa.

Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

WM. H. PERRY & CO.,
Providence, R.

FOR SALE.

New and Second-Hand

METAL WORKING

MACHINERY.

Send for list of same for immediate delivery.

Wanted to Purchase for Cash,

Second-Hand

Metal Working Machinery.

Geo. Place Mch. Co.,

120 Broadway, New York.

ROCK DRILLS, 5 in., 5½ in., 3 in., 2¾ in., 1¾ in., but little used; with or without tripods, steels and hose. Ingersol or Sergeant make.

LIGHT LOCOMOTIVE, Baldwin, 9 in. x 14 in., 36 in. gauge, Forney Type, in good condition.

STEAM SHOVEL, 1¼ Cubic yard Barnhart Shovel, used 18 months.

ENGINE and BOILER, 35 H. P. engine; 50 H.-P. horizontal tubular boiler, nearly as good as new.

F. W. IREDELL, 10 Park Place, New York.

LIGHT RAILS

35 tons extra fine 20 lb. steel 20 tons very good 16 lb. iron. Also lot 30s and 35s.

Locomotives, Cars, Hoisting Engines, Stone Crushers, Contractors' Tools, &c.

Thos. P. Conard,
206 Walnut Place, Philadelphia.

NEW 14 in. SWING

DEXTER LATHES.

5 foot bed $180.00. 6 foot bed $185.00.

Also 16, 18, 21 and 24 inch swing.

Send for cut and full description.

A. B. Pitkin Machinery Co.,
PROVIDENCE, R. I.

Mention *The Iron Age.*

FOR SALE.

Second-Hand Machinery.

1 17 in. x 17 in. x 4 ft. planer.
1 24 in. x 24 in. x 8 ft. planer.
1 52 in. x 26 in. x 34 ft. planer.
1 72 in. x 36 in. x 12 ft. planer.
1 18 in. x 8 ft. engine lathe.
1 21 in. x 7½ ft. engine lathe.

THE POWELL PLANER CO.,
WORCESTER, MASS.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small. "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

CLOSING OUT SALE. CHEAP.

One single-spindle drill press, 22-inch, Reed.
One Garvin hand lathe, 4 feet x 13 inch swing.
One Prentice lathe, 6 feet x 12 inch swing.
One Juengst shaping machine, 16-inch swing.
Parker's swivel vises, small special gear cutter, iron split pulleys, lathe tools, hexagon top bolts, flat bar and plug gauges.
Cabinet maker's bench.
Office furniture, desks and safe.

E. S. LEAYCRAFT & SON,
44 Dey St., New York.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $500 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. HIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

Bargains for cash before removing to our new store, 46 N. 7th St.

One 10 x 24 Horizontal engine. A No. 1 condition.
One 4 x 4 " " " "
One 8 x 14 Vertical " " "
One 6 x 6 " " New.
One 7 x 7 " " "
One 5 x 6 " " "
One 6 x 7 " " "
One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.
HIGH & DAMPMAN, No. 123 N. 3rd St. Philadelphia.

PIG IRON.

100 tons all-ore Carbonized Pig Iron, made especially for thin plates and small castings. For sale by
C. W. SCHULTZ & CO.,
No. 358 Walnut St., Philadelphia.

FOR SALE.

One 21 in. x 13 ft. Lodge & Davis improved Engine Lathe. Complete.
One 24 in. x 30 ft. Fifield Engine Lathe. Complete.
One 3 ft. Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.
DANIEL KELLY,
51 N. Seventh St., Philadelphia.

FOR SALE.

BESSEMER PIG IRON

3000 tons No. 1 Bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

JUPITER FURNACE CO.,
6-28 Laclede Building, St. Louis, Mo

STEEL RAILS.

We offer 100 tons second hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).
H. V. L. MEIGS & CO.,
136-138 So. 4th St., Philadelphia.

Rolling Mills or Machine Works,
wanting a **SPECIALTY.** Exclusive territory granted. Address "N. A. W.," office of *The Iron Age*, 220 So. Fourth Street, Philadelphia, Pa.

1 2000 lb. double standard Rement Steam Hammer with Anvil and extra Piston Rod. Hammer is in first-class condition. Immediate delivery.

Geo. Place Mch. Co.,
120 Broadway, New York.

FOR SALE.

Large lot of Loco. Boilers,
50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

Second-Hand Boiler Tubing

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address
Wm. F. Jarvis & Co.,
Detroit, Mich.

FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals
BUSSENIUS & CUNLIFFE,
1142 Washington Ave., Philadelphia.

FOR SALE.

CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

PIG IRON WANTED.

To exchange a valuable manufacturing property in New Jersey for 350 tons of good No. 1 and No. 2 Foundry Iron. Address
"VALUABLE PROPERTY,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

CHARCOAL IRON BLAST FURNACE.

FOR SALE OR LEASE.

A 50 ton Iron Furnace, with charcoal ovens; tramway to our fields, pipe line to reservoir, switches connecting with trunk railroad at its site. A most complete plant in every detail. For information address
EDW. S. MAUNSELL,
P. O. Box 410, New Orleans, La.

For Sale or Lease, with Large Contracts ready made.

A well-equipped freight car factory, with cheap lumber, iron and coal. A rare opportunity to go right to work profitably. Address
"CAR FACTORY,"
office of *The Iron Age*, 96-102 Reade St Y.

CORLISS ENGINES, BOILERS, ROLLS, SHEARS, &c.,

OF BEST CONSTRUCTION.

For Rolling Mills, Electric Light Plants, &c., &c.

24 x 36 and 32 x 60 Vertical Corliss Engines.
30 x 72, 23 x 48, 18 x 42 and 12 x 36 Horizontal Corliss Engines.
24 x 36, 18 x 36, 10 x 16, 10 x 12 Slide Valve.
11 x 21 and ~~14 x~~ 24 Buckeye; 18 x 12 Armington & Sims.
4 80 H.-P. Steel Boilers; one 90 H.-P. Boiler; 35 and 50 H.-P. Locomotive Boilers.
1 200 H.-P., 3 100 H.-P. Sectional Safety Boilers.
1 300 Gal. Cameron Pump; 1 No. 7 Blake; 1 Duplex, Smith & Vail, 6 x 4 x 6.
1 14 in. x 5 ft. Screw Cutting Lathe; 4 heavy Shears; 1 Steam and 1 Hydraulic Riveter.

Send for Schedule.

GEO. M. CLAPP, Agent,
74 Cortlandt Street, - New York.

FOR SALE.—SECOND-HAND.

Corliss Engines, 60 x 60, 26 x 60, 26 x 42, 24 x 48, 18 x 48 and 12 x 36.
Wright Automatic Engine, 22 x 42.
Watertown Engine, 18 x 28.
Ball Automatic Engine, 12 x 12.
Hubbard Engine, 12 x 24.
McLaren Engine 12 x 24.
Woodbury Booth & Pryor Automatic Engine, 12 x 18.
Stearns Mfg. Co. Engine, 9 x 12
Payne Automatic Engines, 8 x 10 Hor and 5 x 6 Ver.
N. Y. S. S. P. Co., Engines, 7 x 9 and 3½ x 5.
Ver. Propeller Engines, 20 x 50, 16 x 18 and 14 x 16.
Compound Propeller Engine, 4 and 7 x
Lidgerwood, Mundy and other Hoisting Engines, 1, 2 and 3 drums 6¼ x 10, 7 x 10, 8¼ x 10, 10 x 12, 10 x 16 and 14 x 16.
Blake, Cameron, Davidson, Deane, Delamater, Foster, Guild & Garrison, Hall, Knowles, Niagara, Smith-Vaille, Woodward and Worthington Pumps, all sizes.
Boilers, Dynamos, Feed Water Heaters, Elevators, Pulleys, Shafting and General Machinery.
GIANT Steam Excavator and Wrecker, 1500 to 2000 yards.
Very heavy Bushnell Knuckle Joint Press.
MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft Pulley Lathe, 2 tools
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers. 6 spindle for ⅞ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern
2 Heaters, medium and large size.
1 No 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.
W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

FOR SALE.

Second-hand

FEED-WATER HEATERS.

Unloading. We have a large stock of second-hand Berryman Feed-Water Heaters, which have been replaced by larger heaters of same make; we have also a number of Feed-Water Heaters of various makes and sizes taken in exchange for Berryman Heaters; removed from manufactories, public buildings, print works, hotels, hospitals, colleges, breweries, bakeries, laundries, dyeing vats, and woolen mills; some of these heaters are as good as new, and are offered at extremly low prices; sizes vary from 40 to 1800 H.-P.; it will be to your interest to consult with us before ordering.

BENJ. F. KELLEY & SON,
91 Liberty St., New York.
Headquarters for the Berryman Feed Water Heater and Purifier.

WANTED.

SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.
"MANUFACTURER," P. O. Box 1840,
New York, N. Y.

Changed Weekly.

— PLANTS. —

Pennsylvania Machinist employing 75 hands wants new location within easy reach of N. Y.

Tack Works for sale, 25 Machines.

VINELAND, N. J., by R. S. Armstrong's Son's foundry, on two Railroads, one acre, buildings 60 x 90, Brick. Being near Philadelphia and easy of access to N. Y. makes splendid location for light manufacturing. Depot across the street.

— WANTED. —

PRESS, Hydraulic, with pumps.
RAILS, 500 tons heavy, to relay.
FIRM to make composition castings, order if liked.

— FOR SALE. —

CARS, Flat, 12 P. R. R. Standard.
ENGINE, 6 H.-P. Roper. Offer wanted.
GAS ENGINE 5-10-15, guaranteed.
MINE, MANGANESE, said to be A1.
BLOCK, seasoned dogwood, persimmon, used by tool makers Send for samples.
CAR, street combination, half open, half closed.

WIRE for bundling, different sizes.
WIRE RODS, all sizes.
CARS dump, 2 and 5-yds., side.
RAILS 16s, 20s 3 s.
FISH PLATES for same.
PIPE, FLANGE, 6 inch.
LOCOMOTIVE, 33 in., saddletank.

TO BIRD CAGE DEALERS and Manufacturers: Two racks each about 15 ft. high placed with me to sell. Will exhibit 25 cages each. Made by Mitchell, Vance & Co. for an exhibition. Highly ornamented and will be sold cheap.

— Agents Wanted By: —

Waechter, Lane & Co., Canton, Ohio, for their Small Steam Pumps, claimed to be the best made.
Pennsylvania Diamond Drill Co., Birdsboro, Pa., for their Prospecting Diamond Drills. Liberal inducements offered.
Santley & Co Wellington, Ohio, for their Belt Holders. Thousands in use.

— AGENCIES WANTED. —

Heyman Sucesores, Mazatlan, Mexico.
Martindale Manufacturers' Agency, Chattanooga.
E. F. Roessel, Denver, Col.

INDUCEMENTS OFFERED BY.

Board of Trade, Belmont, N. Y.
Board of Trade, Bristol, Pa.
Board of Trade, Watkins, N. Y.

Let me hear from you. Names and addresses of any of above given freely on application.

H. H. Mansfield,
126 Liberty, St., N. Y.

Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,
59-73 West St., - Brooklyn, N. Y.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

FOR SALE.

Having retired from active business, we offer the following, all in good condition, at bargain figures for prompt cash:

10 Weimer charging buggies.
1 7-foot revolving coal screen, ¼-inch and ⅝-inch mesh.
2 cinder carts.
Lot of furnace tools and tool iron.

H. & J. GABEL, Pottstown, Pa.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

TO LET.

The Engine Works at Newburgh, N. Y., at present occupied by Wm. Wright, is offered to let from May 1st, 1892

The property consists of machine shop, foundry, boiler, forge and pattern shops with a full equipment of tools.

The works are located in the heart of the City and convenient to railroad and river transportation. For terms apply to

HOMER RAMSDELL,
Newburgh, N. Y.

FOR SALE.

Twenty ton Steam Crane, New. 26 foot Mast, 35 foot length of Jib. For particulars, address

SHARON STEEL CASTING CO.,
Sharon, Pa.

MILL PROPERTY TO LEASE AT SOUTH CHICAGO, ILL.

A mill with improved machinery for manufacture of pipe, for lease on long term to desirable party; much of machinery can be used for other manufacturing purposes to great advantage; property has exceptional railroad facilities. Address

A. LIEBERMAN,
office, 1461 State St., Chicago,

Whose yards will be located at 93rd St. and Anthony Ave., adjoining mill property.

FOR SALE.

35 lb. and 30 lb. T rails, second-hand, suitable for relaying; four miles with fastenings, by

MANOGUE-PIDGEON IRON COMPANY,
Memphis, Tenn.

FOR SALE.

Cheap if taken at once. Good iron yard office, office fixtures, scales, sheds and lease.

BURNSTEIN BROS.,
466-476 S. Canal St., Chicago, Ill.

HARDWARE AND HOUSE FURNISHING BUSINESS FOR SALE.—An established business in a leading avenue in New York City. First-class neighborhood growing yearly. Jobbing business can be added. Stock about $8000. Address "EXCELSIOR," 47, office of *The Iron Age*, 96-102 Reade St., New York.

Wanted, Manufacturers.

FREE SITE,

CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants,* in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties* We are *not bound* to *any locality* and will give *unbiased information* on application.

Write for proposition blank.

AMERICAN LOCATING CO.
(INCORPORATED),
406-7 Pioneer Press Bldg., St. Paul, Minn.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and Stove Plate. Correspondence solicited.

WM. D. BENNAGE & CO.,
2213-2215 Hamilton St., Philadelphia.

GREAT BARGAIN.

Large manufacturing plant, with three acres of land, at Pearl River, N. Y., 27 miles from New York City. Opposite Railroad Depot, two-story brick buildings, 300 feet long, with ample land for enlargement, with side track, &c. Well lighted all around; with 80 H.-P. engine and boiler, shafting and pulleys, iron melting furnace, cheap labor and freights. To be sold at a sacrifice to close an estate. For particulars apply to J. H. BRAUNSDORF, Executor, Pearl River, N. Y.

WANTED,

Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired "A. B.,"
office of *The Iron Age*, 146 Franklin St., Boston, Mass.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address

T. C. KERRICK,
Bloomington Ill.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?
DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?
WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points.
ADDITIONAL CAPITAL ALSO PROCURED
WRITE FOR PARTICULARS
YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY.
ADDRESS
REFERENCES GIVEN UPON REQUEST.
F. S. MORDAUNT & Co.
CHAMBER OF COMMERCE BLDG, CHICAGO
THIRD NATIONAL BANK BLDG, CINCINNATI, O.

TIN WORKS.

A firm of engineers in South Wales, closely associated with the trade, are prepared to supply all plans, specifications and estimates for the erection and conduct of tin works embracing all the latest improvements for economizing the cost of production, and also to contract for the supply and erection of the same. Reply in first instance to

"TIN WORKS,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

A MODEL AND MODERN

STOVE FOUNDRY

FOR LEASE OR SALE.

A Foundry consisting of molding room 120 x 145 feet, main building 50 x 160 feet, three stories high, engine and boiler room 25 x 50 feet, stock house 20 x 20 feet and supply and cleaning rooms 20 x 120 feet, covering in all about 34,000 square feet; the buildings are all of brick, steel roofed, and are situated at Clifton Forge, Virginia. They contain a large amount of machinery including a large lot of stove patterns especially designed for them, and with an expense of between $2000 and $3000, the plant could be put into full operation immediately.

This Foundry is most advantageously situated, being but three miles from the Longdale and Lowmoor Furnaces and but a short distance from the coal fields. Both pig iron and coal or coke can be laid down at the Foundry at the very lowest rates and a good market is ready for either stoves or the product of a general foundry business, with freight rates which will compare favorably with those of any other point. This plant will be leased at a nominal rental to reliable and responsible party who will operate it, with the privilege of purchasing in a stated period on liberal terms. Correspondence in this matter or a personal inspection of the plant is solicited. Address

LEWIS HARMAN,
General Manager, Clifton Forge, Va.

To Manufacturers

—DESIRING—

EXPORT TRADE.

Established Manufacturers' Agent, well acquainted with the Export Trade, desires agency of staple or special lines of Hardware, Agricultural Goods, &c.

Address "EXPORT TRADE,"
Box 21, office of *The Iron Age*, 96-102 Reade St., New York.

For Sale.

An Extensive Foundry Business

With full equipment and perfect appliances. All in first-class order and in full running condition. Situated on line of railroad and river within ten minutes' ride of the center of the

City of Pittsburgh, Pa.

A rare bargain to a prompt purchaser. Satisfactory reasons for selling. Most excellent opening. Particulars confidentially from

JAS. W. DRAPE & CO., Agents,
313 Wood St., Pittsburgh, Pa.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable prices. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,
Suburban Traffic Agt., 317 BROADWAY, N. Y.

For Exchange

STRAP .·. HINGE .·. MACHINERY.

The Ripley Hinge Works' entire outfit as operated here, for **Stock** in similar enterprise, or other valuable consideration. Address

ANDREW KING,
Ripley, Ohio.

WANTED.

Stock of hardware of about $20,000 to $25,000, in exchange for a first-class residence which cost $25,000, but will put in the trade at $15,000 and pay difference.

W. B. MACCRACKEN,
Lancaster, Ohio.

WANTED. TO BUY.

A No. 2 or No. 3 Blake or Gates Rock Crusher, second-hand. Address, giving price and full particulars,

CORYELL FLINT PAPER COMPANY,
Williamsport, Pa.

WANTED.

To correspond with a thoroughly practical party, to take part in management and to invest $25,000 to enlarge a profitable iron industry, manufacturing a first class article. Correspondence confidential. Address "M. & M.," office of *The Iron Age*, 96-102 Reade St., N. Y.

Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

MAHONING FOUNDRY AND MACHINE SHOP
Danville, Pennsylvania.

THOMSON-HOUSTON MOTORS FOR SALE.

One 35 H.-P., one 20 H.-P., T. & H. Motors, second-hand, in perfect condition, for sale cheap.

NEW BEDFORD IRON FOUNDRY,
New Bedford, Mass

OPENING

For a new hardware stock, or opportunity for parties dissatisfied with present location to move their stock into an old established stand. The premises have been used for hardware store for over 40 years. Has the best of facilities and modern improvements, including large power elevator. Stock is being rapidly sold off, and will soon be reduced to a small amount. For particulars address "OLD STAND," office of *The Iron Age*, 96-102 Reade St., New York.

HARDWARE - STORE FOR SALE

In a live manufacturing town near New York, for $7500. Clean, new stock, good trade and fine store at low rent. Other business interests reason for selling. Address "C.," Box 324, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

For cash or good security, well-established hardware store and tinshop business. Best location in Chicago; everything first-class; fine fixtures; horse, wagon, safe, etc.; no old stock, sales from $20,000 to $25,000 per annum, good profits; lease of store till May 1, 1893; value $3500; good reasons for selling. This is a genuine bargain. Call on or address owner,

H. R. BUCHANAN,
35 East 43d St., Chicago, Ill.

GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

"ENGINE," Box 324,
office of *The Iron Age*, 96-102 Reade St., N. Y.

IF FROM ANY CAUSE

You have goods to offer at specially low figures for **SPOT CASH**, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of **SPECIAL LOTS,**
75 Chambers St., New York.

Collections?

This is the time for Merchants to look after their past due accounts. We make a specialty of Collections. Try us and be convinced of our efficiency.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
13 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
Send for Catalogue.

143 Chambers St., New York.

THE NATIONAL CORDAGE COMPANY
NEW YORK, April 5, 1892.

The Board of Directors have this day declared the regular quarterly dividend of TWO PER CENT. on the preferred and TWO AND ONE-HALF PER CENT. on the Common Stock of this Company, payable May 2 next at the transfer office of the Company, 135 Front St., this city. The books will close April 15 and reopen May 3 next. CHARLES DAVIS, Treasurer.

Large Planer, For Sale Cheap.

Built by D W. POND.

20 ft. bed., 53 inches between housings (extra heavy). Latest make, only used one year. Apply to

J. NUTTALL,
1723 N. 5th St., Philadelphia, Pa

FOR SALE.

Punching and Shearing Machinery.

Hand and Belt Power.

Boiler Makers' Rolls.

NEW DOTY MFG. CO.,
Janesville, Wisconsin.

LAMBERSON'S

Old Reliable

HARDWARE PRICE BOOKS.

Send for new Illustrated Circular.

BUELL LAMBERSON,
PORTLAND, OREGON

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent stamps for illustrated 16-page pamphlet.
WOLCOTT & WEST, SYRACUSE, N. Y.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

SALES AGENT for a well established rocking grate bar for New York and vicinity, also one for Boston and Philadelphia, or a general manager that could handle all three markets; the grates have first class selling qualities. Address Lock box No. 1527, New York City.

A DRAFTSMAN wanted; graduate of a technical school having had some shop experience, also some experience in drafting marine work. Address, with references, THE LOCKWOOD MANUFACTURING COMPANY, East Boston, Mass.

AT ONCE, a shipping clerk; one of mechanical turn preferred Address L. S. STARRETT, Manufacturer of fine tools, Athol, Mass.

AN EDUCATED MECHANIC who is thoroughly up in modern practice; must be a first-class draftsman and designer; competent to take charge of drafting room and handle work in shop by a company building a special line of machine tools; state salary expected, experience and references. Address "X. X.," office of *The Iron Age*, S. E. cor. 4th and Main Sts., Cincinnati, O.

TRAVELING SALESMAN for steel castings; good position for competent man, Address "CASTINGS," Box 47, office of *The Iron Age*, 96-102 Reade St., New York.

TRAVELING SALESMAN on salary and commission; one who has some experience in selling to hardware trade in New Jersey and Pennsylvania; state experience, reference and salary expected. Address "FACTORIES," Box 47, office of *The Iron Age*, 96-102 Reade St., N. Y.

FOREMAN MOLDER in a Lake City shop employing about 200 molders, principally on railroad work; must have good executive ability and a practical knowledge of foundry work in all its branches; give references as to ability and character, state age, experience and salary expected. Address "FOREMAN MOLDER," Box 44, office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN to carry Shimer Patented Hollow Handle Post Spade as side line on commission. L. & R. WISTER & Co., Philadelphia, Pa.

MAN TO SOLICIT contracts for a company making a specialty of wire, wrought iron, and brass work must be competent to figure on work and assist in correspondence. "BRASS WORK," office of *The Iron Age*, 96-102 Reade St., New York.

AGENTS IN ALL PARTS of the country visiting the Hardware and Implement trade to appoint local dealers agents for a good line of goods; liberal commission; in answering state territory covered. Address OSGOOD & Co., Binghamton, N. Y.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

MAN of 42, business and practical experience in cutlery, hardware, drop forgings, &c.; requires responsible position (with some outdoor work); first-class references. Address "K. B.," Box 47, office of *The Iron Age*, 96-102 Reade St., New York.

GENTLEMAN of 20 years' experience with home and foreign trade solicits correspondence with American manufacturers desiring a New York agent; unquestionable reference. Address JOHN G. ROLLINS, 4 Stone St., N. Y.

A PRACTICAL and educated mechanical Engineer, who has successfully filled positions of charge and responsibility in manufacturing concerns, is open for engagement; a good executive; well up in modern machine shop practice and labor saving devices; also in the economical production of duplicate and interchangeable parts; experienced in adapting old and originating new machinery and methods to decrease cost of production; can take charge of the erection of a plant from the ground up, including equipment. Address "PROGRESSIVE," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

AS CLERK in hardware store or collector; had four years' experience with leading firm of the city; can speak English and German; salary moderate; can give best of references as to ability and integrity. Address "J. G.," Box No. 136, Williamsport, Pa.

AN ASSISTANT HARDWARE MAN capable of taking full charge as buyer for a first-class retail house, or as assistant in a wholesale; will be open for an engagement on or before May 1st; first-class references. Address, care "LETTER CARRIER No. 7," Syracuse, N. Y.

POSITION of responsibility, by middle aged man, experienced in retail and jobbing hardware, paints, lumber, mill supplies, &c; used to correspondence, accounts and care of help; best of references. Address "HARDWARE MANAGER," Box 47, office of *The Iron Age*, 96 to 102 Reade St., New York.

GENTLEMAN formerly connected with large steel company desires position as salesman; understands the business thoroughly and well acquainted with the trade. Address "MERCHANT STEEL," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh, Pa.

AS BOOKKEEPER, by married man 30 years' of age. First-class references. Address "EXCEPTIONAL," Box 47, office of *The Iron Age*, 96-102 Reade St., New York.

BY A THOROUGHLY COMPETENT man with 3 years of practical experience as foreman of an open-hearth steel plant making all grades of steel; or as melter; experienced in analyzing stock used; no objection to location. Address "OPEN HEARTH," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh, Pa.

YOUNG MAN (26), thoroughly competent bookkeeper, double or single entry, two years' experience as stenographer, been several years in present position as bookkeeper for large manufacturers of machinery, wants position where hard work and attention to business will bring fair salary and advancement; references from past and present employers. Address "L. F.," Box 215, office of *The Iron Age*, 96-102 Reade St., New York.

BY AN EXPERIENCED Hardware man, a position as buyer and managing man with some good house in that line of business. Address "B. & M.," office of *The Iron Age*, 96-102 Reade St., New York.

AN ACTIVE MAN of long experience in the steel business, both foreign and domestic, and with extensive acquaintance in the trade desires engagement as secretary, office manager or in any position of trust; is capable correspondent, accountant and bookkeeper; highest references. Address "LODGE 47," office of *The Iron Age*, 96-102 Reade St., New York.

AS SUPERINTENDENT, by a mechanic of ability who thoroughly understands the manufacture of locks and builders' hardware; 30 years' experience in the business; 15 years as foreman and superintendent; understands brass and iron foundry practice, pattern and die making; references and recommendations. Address "R. A.," Box 47, office of *The Iron Age*, 96-102 Reade St., N. Y.

BY A MECHANICAL draughtsman, experienced in steam engineering and railroad work. Address "W. D. H.," office of *The Iron Age*, 59 Dearborn Street, Chicago.

MECHANICAL ENGINEER, experienced in mill machinery, hydraulics and hydraulic machinery, machine tools, pumps, tanks, stand pipes and wrought iron construction, with good business training, accustomed to handle men, make estimates and superintend construction, desires position as chief engineer or superintendent; personal interview solicited. "HYDRO," office of *The Iron Age*, 96-102 Reade Street, N. Y.

TO MANUFACTURERS.—Englishman of practical and business experience (ten years in U. S.) requires responsible position in connection with some manufacturing concern; thoroughly experienced in etching on bright goods by all known processes; good accountant, &c. Address "ETCHER," Box 317, office of *The Iron Age*, 96-102 Reade Street, New York.

AS SUPERINTENDENT or foreman by young man; have had 15 years' experience in agricultural and edge tools and understand the erection of new plants, &c.; am a pusher and now giving satisfaction in a very responsible position; mechanic by trade; can furnish first-class reference; will be open for engagement after June 1. Address "LOUIS," office of *The Iron Age*, 96-102 Reade Street, New York.

A MIDDLE AGED MAN, active and of unexceptionable habits and highest character wants employment; can take responsible position or would travel; is familiar with general business, more especially car wheels, pig iron and lumber. Address "L.," Box 331, office of *The Iron Age*, 96-102 Reade Street, New York.

A GENTLEMAN who has a thorough knowledge of the manufacture and sale of Pig Iron and Bar Iron, Angles, &c., solicits correspondence with blast furnace companies and rolling mills who are in need of an Eastern agent or with parties who have agencies and require additional capital. Address "EASTERN AGENT," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as superintendent of manufacturing establishment. Address "MULLACH" Box 33, office of *The Iron Age*, 96-102 Read treet, New York.

A MECHANICAL Engineer who has had several years' experience in estimating, designing and superintending work desires a responsible position; has good practical knowledge of steam engineering and was superintendent for a considerable number of years in a large manufacturing company; can refer to present and past employers Address "STEAM ENGINEERING," Box 324, office of *The Iron Age*, 96-102 Reade St., New York.

MECHANICAL Engineer with exceedingly good experience in marine engineering, steam and hydraulic machinery, good shop experience, capable of handling men, desires position as assistant superintendent, manager or chief draughtsman in New York or vicinity. Address "MARINE," office of *The Iron Age*, 96-102 Reade St., New York.

A THOROUGH practical rolling mill manager or superintendent will be open for a position about May 1st; is highly indorsed for ability, sobriety and integrity. Address "IRON AND STEEL," P. O. Box 523, Pittsburgh, Pa.

AS BLAST FURNACE Superintendent, by energetic young man who is experienced in the metallurgy and practical working of blast furnace on all grades of iron and spiegel; also in selection of material; is experienced chemist. Address "FIRE BRICK," Box 317, office of *The Iron Age*, 96-102 Reade St., New York.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

A MARRIED MAN (age 37), with 15 years' experience in the retail department of a large wholesale hardware house in the North, desires a position in the South; reference furnished. Address "SOUTH," Box 317, office of *The Iron Age*, 96-102 Reade St., New York.

—PECKHAM'S ECONOMY NAIL PULLER.—

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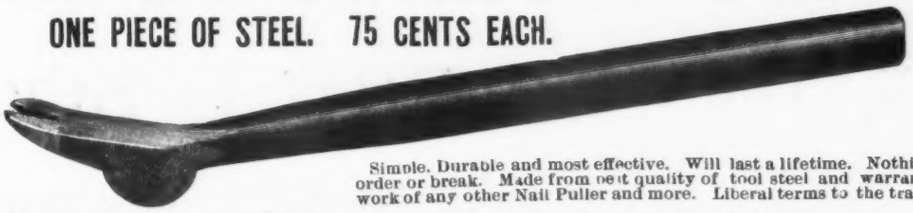

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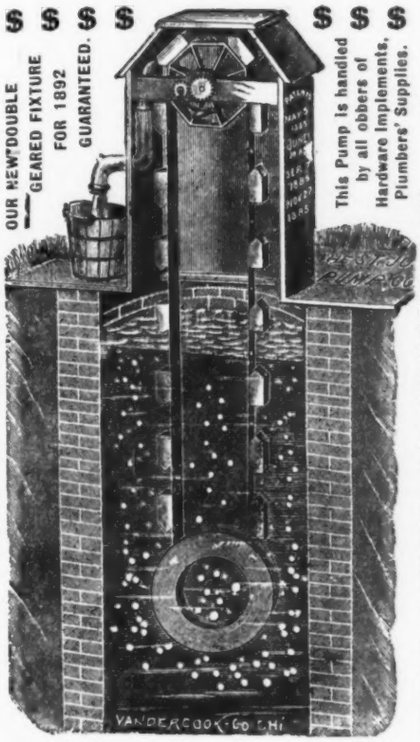

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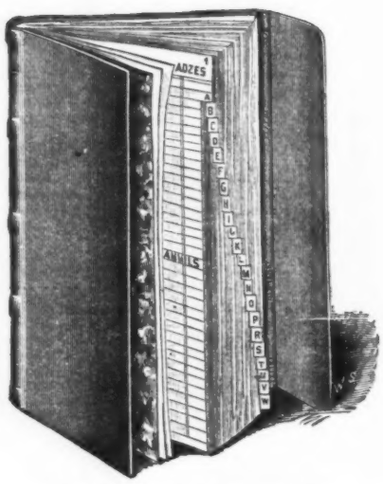

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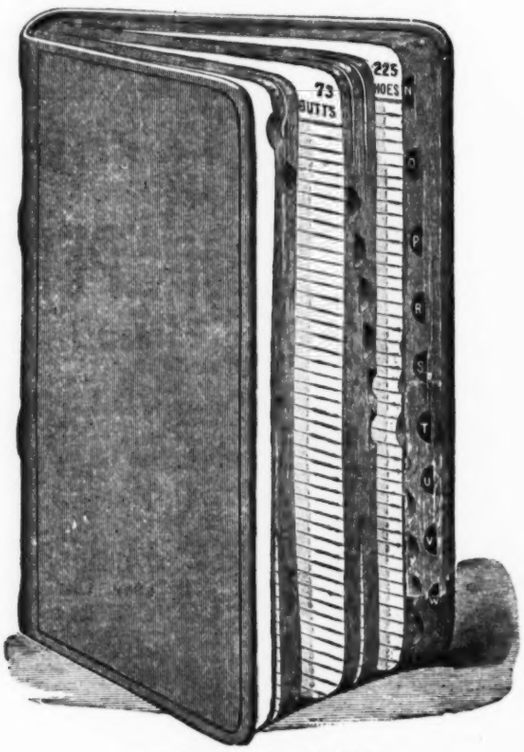

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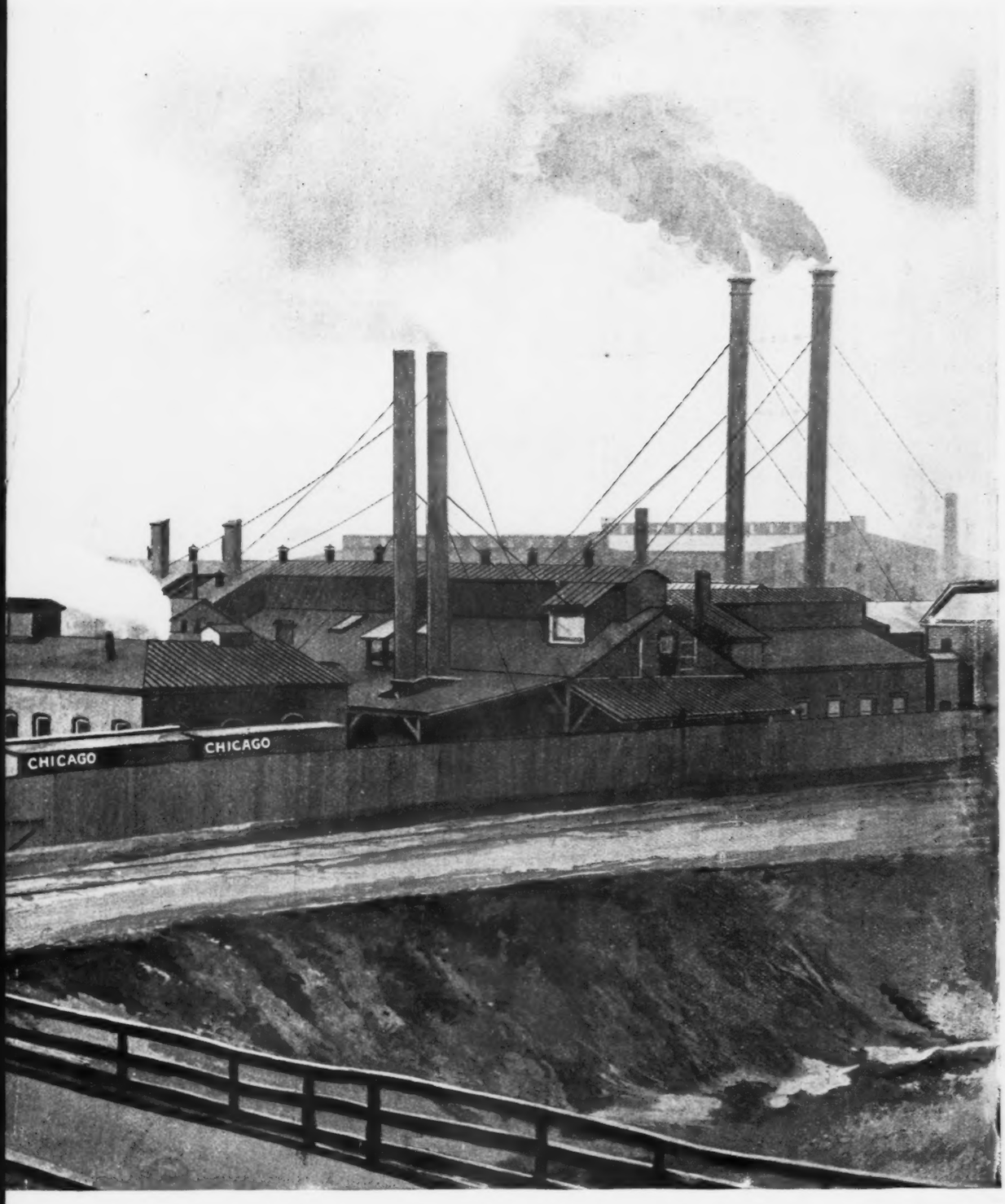

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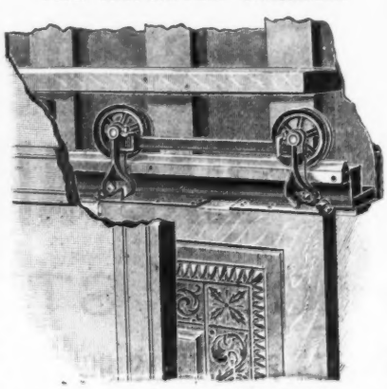

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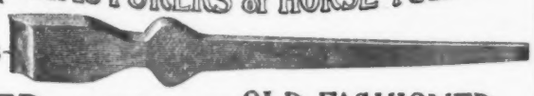

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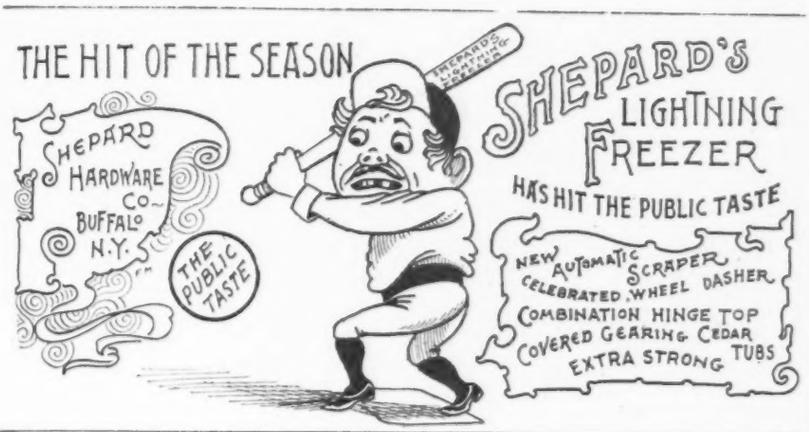

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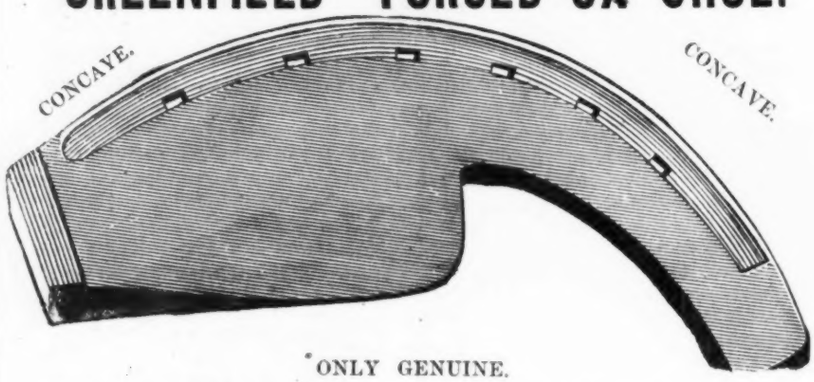

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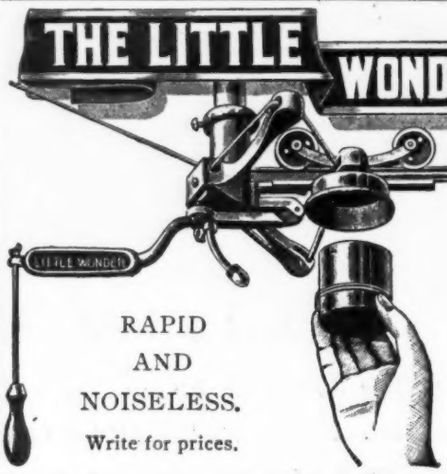

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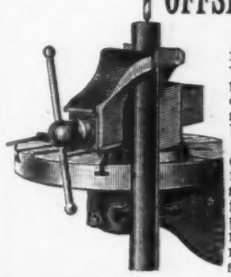

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Inventors assisted in perfecting their claims in patents and making their Models, Trial Machines, etc. All kinds of Brass Castings made to order. We shall also have Machine Shop and Foundry attached for the manufacture and repair of machinery.

SOLE MANUFACTURERS OF THE
RICHARDSON PATENTED TACK HAMMER.

W. & B. DOUGLAS, MIDDLETOWN, CONN.

Branch Warehouses: 85 and 87 John St., New York; 197 Lake Street, Chicago, Ill.

THE OLDEST AND MOST EXTENSIVE MANUFACTURERS OF

Pumps, Hydraulic Rams, Garden Engines,

Yard Hydrants, Street Washers, Galvanized Pump Chain, Wind Mill Pumps and other Hydraulic Machines in the World.

DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 180.

Fig. 70.

or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

Send for Circular and Price List.

Fig. 209.

Fig. 1

MYERS REVERSIBLE STEEL and WOOD TRACK HAY CARRIERS

TRADE MARK. A complete outfit. Easy to put up, always reliable and fully warranted to meet the wants of any farmer.

GREATEST IMPROVEMENT OF THE AGE

Simple, durable, powerful, easy to operate never affected by frost. **Patent GLASS VALVE,** will never corrode. Ask your dealer for our goods. Write for catalogue.

F. E. MYERS & BRO. ASHLAND, O.

SPECIAL FEATURES OF OUR LEVEL.

1. The greatest strength and durability attainable. 2. Entire glass exposed to view. Most convenient level made. 3. The only level really adapted to the rough use of masons. 4. Absolutely accurate and finely finished. Send for Circulars and Price-lists.

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J. E. BULLARD, 89 Lake St., Chicago, Ill., Western Agent.

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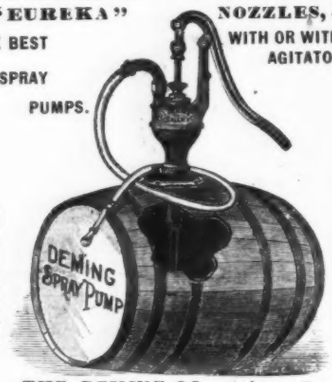
"EUREKA" THE BEST SPRAY PUMPS.

NOZZLES, &c. WITH OR WITHOUT AGITATOR.



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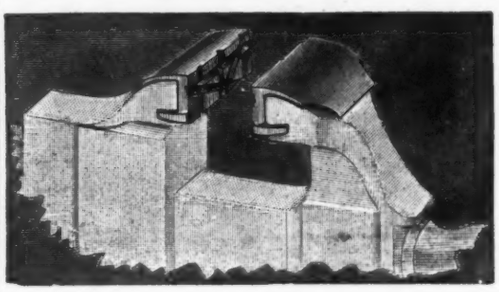
Western Agents: HENION & HUBBELL, CHICAGO, ILL.

Mention *The Iron Age.*



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Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

3¼ inch, ...per pair, 40 cents.
4 " ..... " " 50 "
4½ " ..... " " 60 "

PRENTISS VISE CO.

41 Barclay St., New York.

PARAGON BOX OPENER.

This is a Practical, Convenient and useful Tool. A Box Opener, Nail Puller and Nail Driver. Made of Steel, well tempered and strong. Endorsed by all who have used it, and proves a ready seller. **Price, Each, 75 Cents.**

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For destroying lice, worms and fungus on plants, vines and trees. They are needed for destroying Hop Lice, Cotton Worms, Orange Scale, Tobacco Worms, Codling Moth, &c., &c. We make a specialty of spraying outfits and guarantee that ours are

Latest, Cheapest and Best

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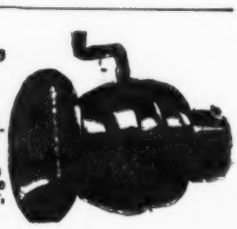
Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



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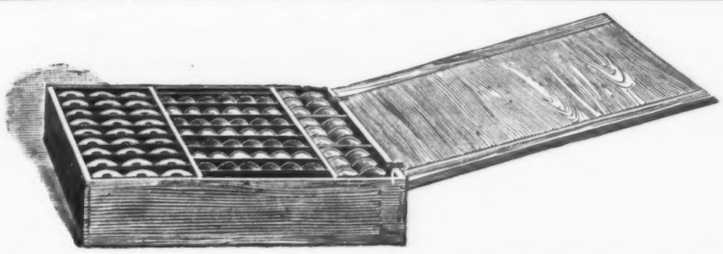
WARNER'S BURGLAR PROOF LOCKS.

LIGHTEST. SAFEST.



SEND for a sample of our solid braided cotton sash cord. It is more flexible and as durable as any sash cord made.

We would also call your attention to our extensive assortment of spool wire, which is the neatest box on the market and is indispensable to the retailer. **Send for Catalogue.**

TATE & CO., Malden, Mass.,

Manufacturers of Braided Wire Picture Cord, Twisted Galvanized Clothes Line, Sash Cord, Spool Wire, etc.

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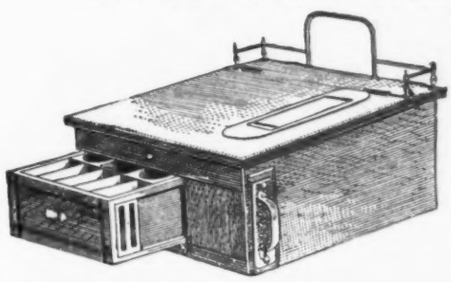

THIS CASH REGISTER is acknowledged by leading Merchants to be the Best and Cheapest CASH CHECK REGISTER on the Market. Send for circulars giving Prices, Cash Discounts, Etc.

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MANUFACTURERS OF

The Lighton Automatic (Nickel-in-Slot) Lifting and Grip Machines,

Office, 512 East Water St., Factory, cor Grape and Water Sts., Syracuse, N.Y., U.S.A.

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34 and 36 Long St., Cleveland, Ohio.

Manufacturers and Dealers in Steel, Copper and Brass Wire of all kinds.

Patent Spooled Wire

For Retail Hardware Trade and Wire Specialties.

Dealers who handle it do away with the Broken Bundle Business and sell small quantities by the spool only. It is a convenience for both dealer and consumer. It is Shellac Coated and Cannot Rust; is wound like spool cotton on 1 oz., ¼ lb., ½ lb., 1 lb. and 5 lb. Spools.

Special Wires Spooled for manufacturing purposes. Send for illustrated Catalogue and prices. Sold by all Hardware Dealers.

Retail Stock containing 147 Spools

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Backus Patent Bit Braces,

RATCHET BRACES, ANGULAR BORERS,

Adjustable Socket Wrenches and Breast Drills.

Write for 1892 Catalogue and Price List.

Angular Borer.

Adjustable Socket Wrench.

BACKUS MANUFACTURING CO.

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The HENRY C. HART MFG. CO.,

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MANUFACTURERS OF

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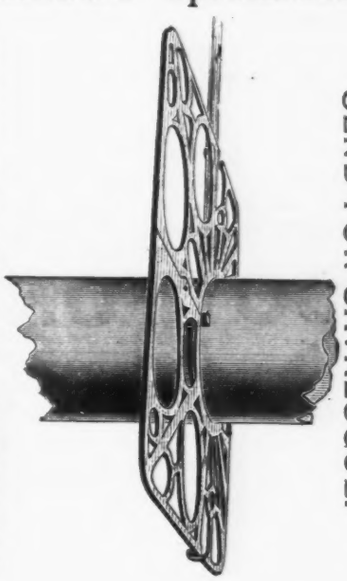
STANDARD STOVE PIPE SHELF.



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Or Slipping and Breaking of Glass in Green Houses or Farmer's Sash. You can save money and glass by using the

PATENT GLAZIER Twin Points.

THESE POINTS are far superior to the old mode of setting glass, as they will hold each pane in place, preventing the glass from slipping and causing binding and cracking. Each box contains 500 rights and 500 lefts. We also make a tool for driving the points. **Price. 35c a Box. Driver, 15c. A Liberal Discount to the Trade.**

These points are kept by all prominent Hardware, Paint, Oil, Seedsmen, and Florist Supply Stores in the country. If you do not find them, send postal for a free sample, or send 60 cents for 1 package and 1 driver by mail, post paid to any part of the U. S.

H. W. EAMES CO., Milford, Mass.,

JESSE JONES & CO.,

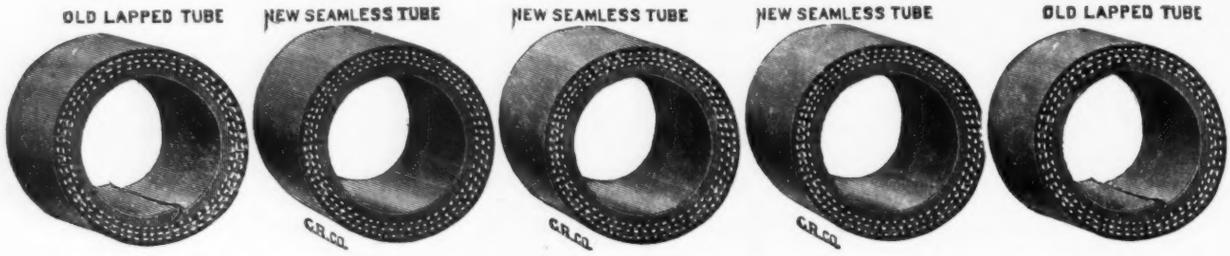
HARDWARE SHELF BOXES

Made of Wood. No screws or nails used to work out and cut your shelving.

615 Commerce St. Phila.

Send for circular and list of references.

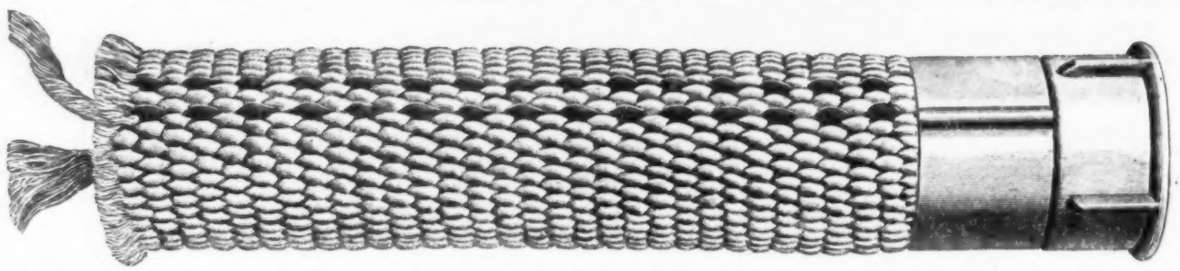
SEAMLESS TUBE HOSE.



WHO HAS NOT HAD BAD HOSE RETURNED? Who has not lost time and patience by prolonged correspondence attempting settlements for such goods? Who has not had a repetition of this sort of thing season after season, until in despair he has asked, "Is it not possible to make perfect hose?" **WHAT IS THE CAUSE?** It is the lapped seam in the tube that causes the mischief. Hose so made has a crack extending its entire length, liable to open and admit water to the duck. Compress the ends of ordinary hose and the crack will be detected; it can also be known by the uneven thickness of the tube. **WHAT IS THE REMEDY?** To buy Seamless-Tube Hose! Uniform in thickness, having no seam, no crack, no defects; water cannot get through to weaken and rot the duck, and cause it to burst under light pressures. **NO MORE BAD HOSE.** Being made by machinery, there is no variation. The tube being run like lead pipe, through a die, there is no liability to defects. All other hose is hand-made, and by piece work, where carelessness is liable to cause defects. **WHAT DOES IT COST?** While it costs more to manufacture than in the old way, yet, producing it in the large quantities we do, and desiring to introduce it extensively, we shall offer it at the same price as the ordinary lapped seam hose. **IT IS THE CHEAPEST HOSE TO BUY,** because it is worth more on merit, because it is an improvement on others, because it renders longer and better service; and because **IT IS THE EASIEST HOSE TO SELL,** for it is a new thing, its value can be easily demonstrated; its merits are apparent and readily appreciated, even by the occasional buyer. **SALES OF OVER TWO MILLION FEET** of Garden Hose alone during the past year, distributed throughout the United States, and not a single piece complained of, justifies us in guaranteeing that it will give absolute satisfaction. **WE ARE THE ONLY MANUFACTURERS OF SEAMLESS-TUBE HOSE.** We have secured Letters-Patent thoroughly covering its manufacture, and shall protect our rights against all infringements. All good things are imitated, and doubtless this will be, but as all our hose is stamped with our trade-mark, dealers can avoid liability by refusing to buy hose not bearing our brand. **MADE IN ALL SIZES AND KINDS** Garden, Engine, Steam, Fire, Brewers' and

SEE OUR GOODS.
GET OUR PRICES.

COTTON RUBBER-LINED HOSE.



We are the Largest Manufacturers in the United States of Cotton Hose and the only ones making it with a Seamless-Tube Rubber Lining.

The Fabric is the best long staple cotton, heavily and closely woven, and the hose is capable of standing enormous pressure, fully equal to the requirements of any system of water works, and with proper care it will be very durable.

WANT YOUR TRADE.
WRITE FOR CATALOGUE

The Seamless Rubber Tube is composed of excellent stock, tough and elastic, with only slight corrugations, so firmly cemented to the fabric that separation cannot occur.

Pliability. This hose is woven so as to obtain maximum strength and still leave it soft, pliable, and easy to handle, and the outside surface is not liable to become worn by friction with the ground as readily as other makes.

The Distinguishing Feature is two parallel dotted blue lines running the length of each section;—this is our trade-mark. Buy this kind and you will have the best.

25,000 Feet for WORLD'S FAIR.

We were awarded an order of 25,000 feet of 2½ inch Jacket Cotton Hose by the World's Fair Commissioners. This is the largest single order ever placed for Cotton Hose, and was given to us on the merits enumerated above.

CLEVELAND RUBBER CO.,

Do Not Confuse Ours with the Cheap, Inferior Grades of Cotton Hose on the Market.

CLEVELAND, OHIO.

STEAM GAUGE AND LANTERN CO.,

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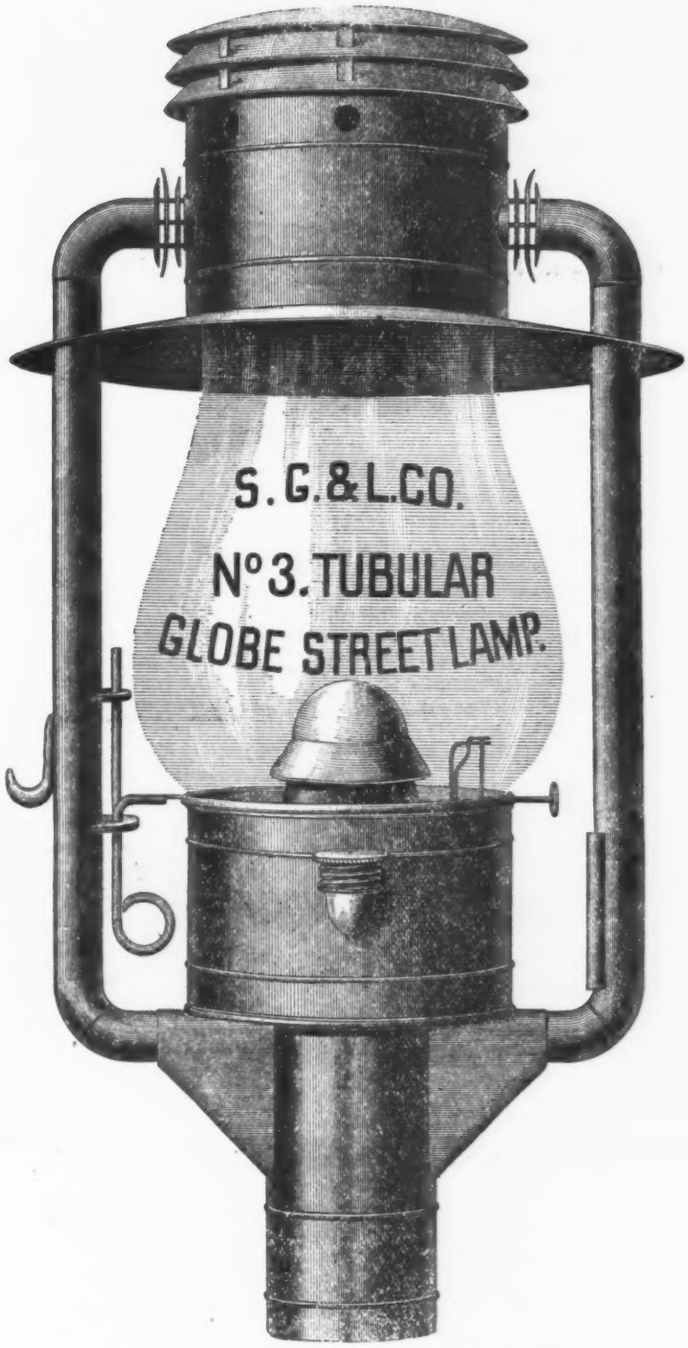
WESTERN BRANCH, 25 Lake Street, Chicago, Ill.



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Flame Brighter than the Best Gas Street Light.

Automatic Extinguisher. No Chimney.
Outside Wick Regulator. Casts No Shadow.
Does Not Smoke. Will Not Freeze.
Will Not Blow Out in the Strongest Wind.

Will Burn Four Hours for One Cent.

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Saw, Tool, Steel and File Works,

PHILADELPHIA, PA.

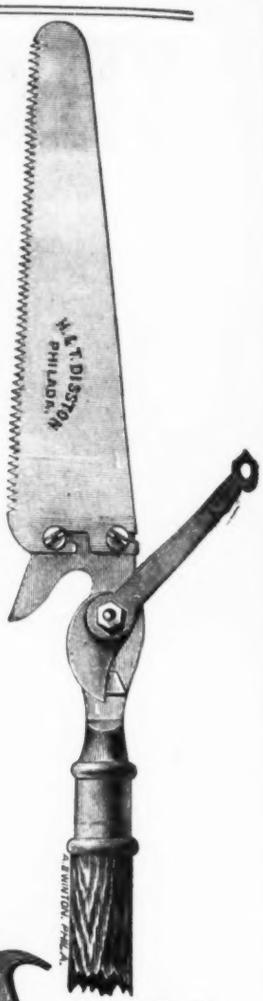
All goods bearing our brand are fully warranted.

Solid Shank Cast-Steel Garden Trowels.

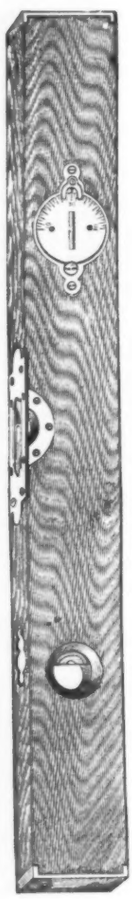
No 4 Double Edge Pruning Saw.

"California" Pruning Saw.

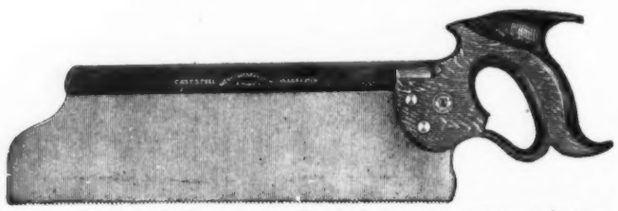
No. 7 Cast-Steel Pruning Saw.



Little Giant" Pruning Hook and Saw. The knife and saw are made of the best cast steel.



Pat. Adjustable Plumb and Level with Graduating Attachment.



No. 9 Improved Back Saw. Apple Handle with Thumb Piece.

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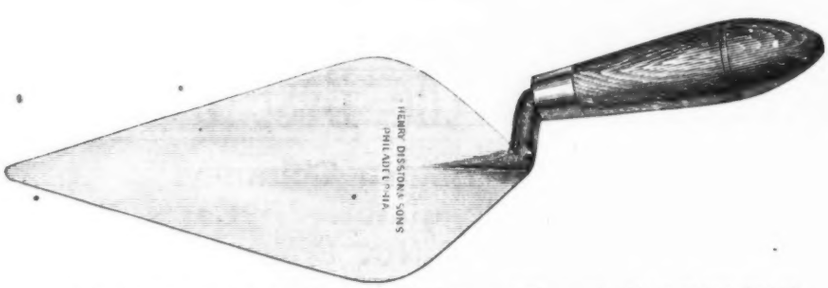

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"Samson" Tree Planter and Post Hole Digger.

Send for new edition of "Lumberman's Hand-Book," a complete treatise on saws, mailed free.

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FINE SAWS A SPECIALTY.

CIRCULAR BAND, GANG and CROSS-CUT SAWS.

Every Saw Warranted.

We were the first to introduce the best grade of Saws, among which are the

Tuttle Tooth, Diamond and Dexter,

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SILVER STEEL DIAMOND.

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Western Agents for Tanite Emery Wheels. *Write for Catalogue and Prices.*

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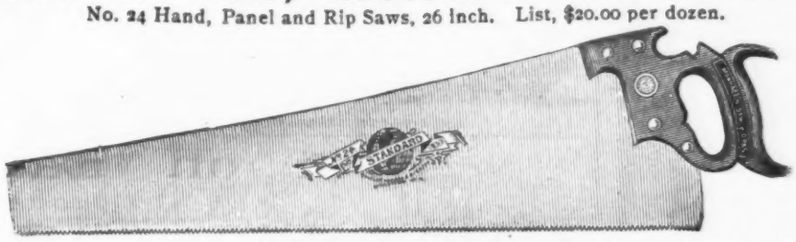
MANUFACTURERS OF HAND, CROSS-CUT AND WOOD SAWS.

No. 24 Hand, Panel and Rip Saws, 26 inch. List, $20.00 per dozen.

Extra Thin Back.
Patent Handle.
Hollow-Back Blade.



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This is the best and cheapest saw made for the mechanic's use. It is fully warranted and will outlast any other saw on the market.

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YOUR STOCK SHOULD INCLUDE

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Adv se where you saw this inv'tation. Send for the Simonds Sor-cerer; it will amuse you; Sent gratis.

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Specially Adapted for Use on Wire Fence.

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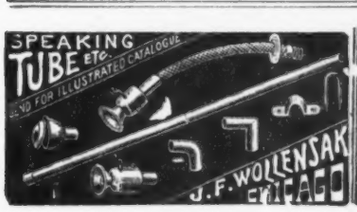

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"Conroy" Refrigerator Door Fasteners.

LIGHT BRASS CASTINGS

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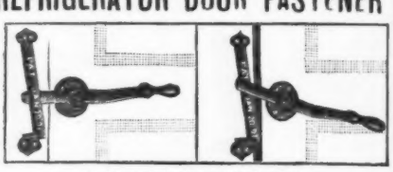

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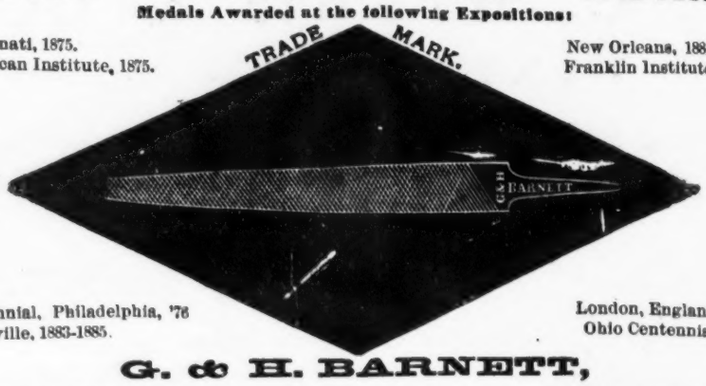

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Superiority acknowledged wherever used, sold or exhibited.

Best on Earth.

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Knight's Patents and Class Improved Duplex Saw Mill Dogs.

—MADE ONLY BY—

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For Sale by Dealers and Saw Mill Builders.

STEEL TAPES,

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CLASS BOARDS,

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Our large factory and our increased facilities enable us to serve our customers better than ever before.

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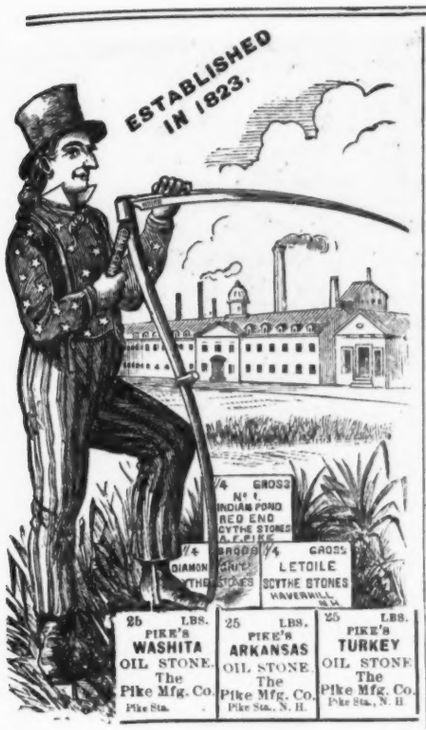

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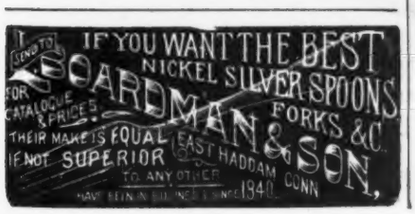

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GOOD MECHANICS EVERYWHERE APPROVE IT.

Do not force your best customers to send to us for this tool. We prefer to have you do the business and make the profits. But we say to all mechanics, if your hardware dealer will not get it for you we will send it post paid for the retail price. For terms, &c., address

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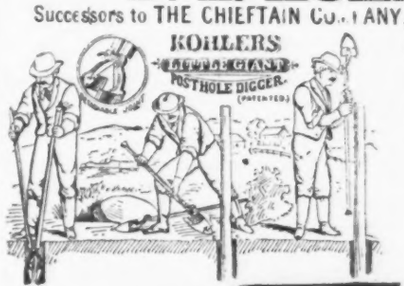
Successors to THE CHIEFTAIN CO. OF ANY, Mfrs. Hardware Specialties, Canton, Ohio.



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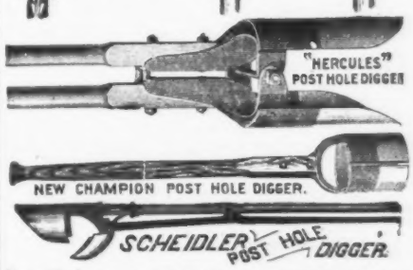

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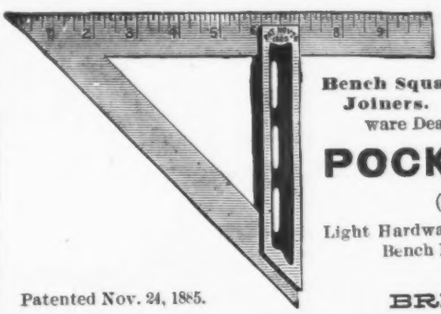

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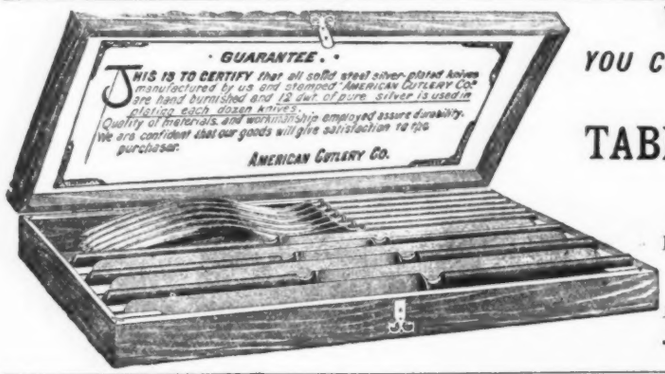

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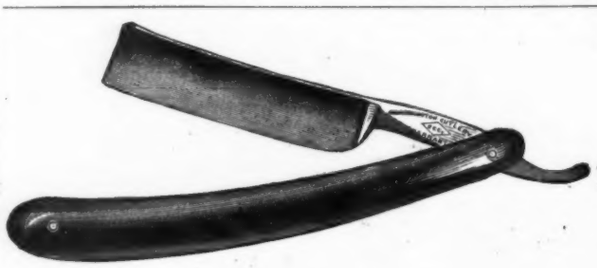

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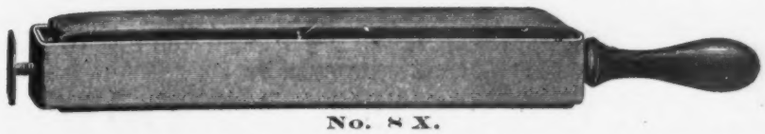

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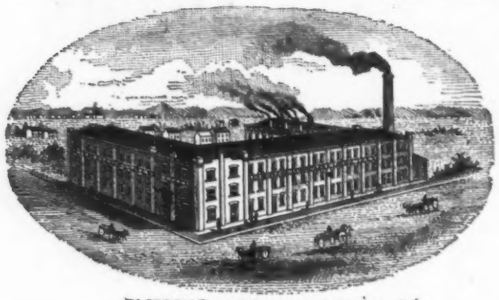

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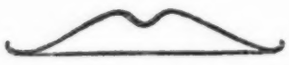
WADE & BUTCHER SHEFFIELD, ENGLAND B OR  OR B SPECIAL

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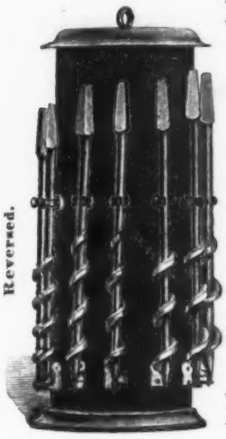

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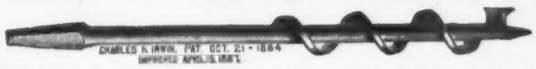

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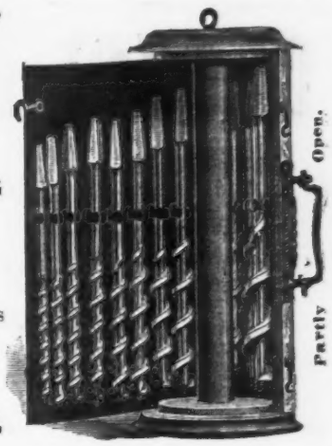

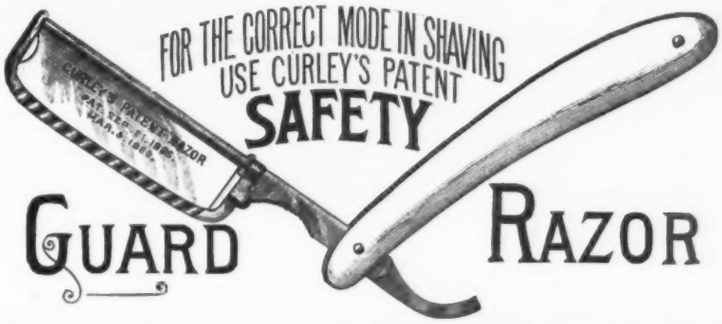

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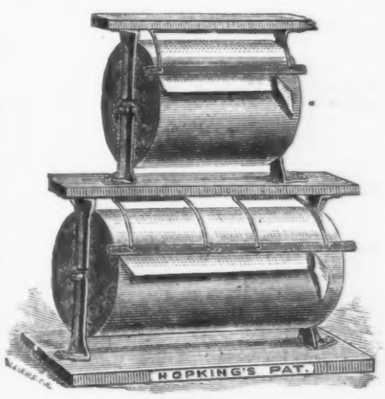

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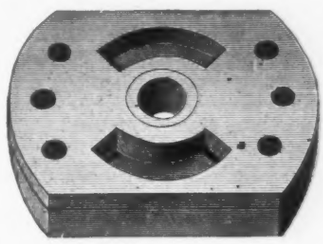

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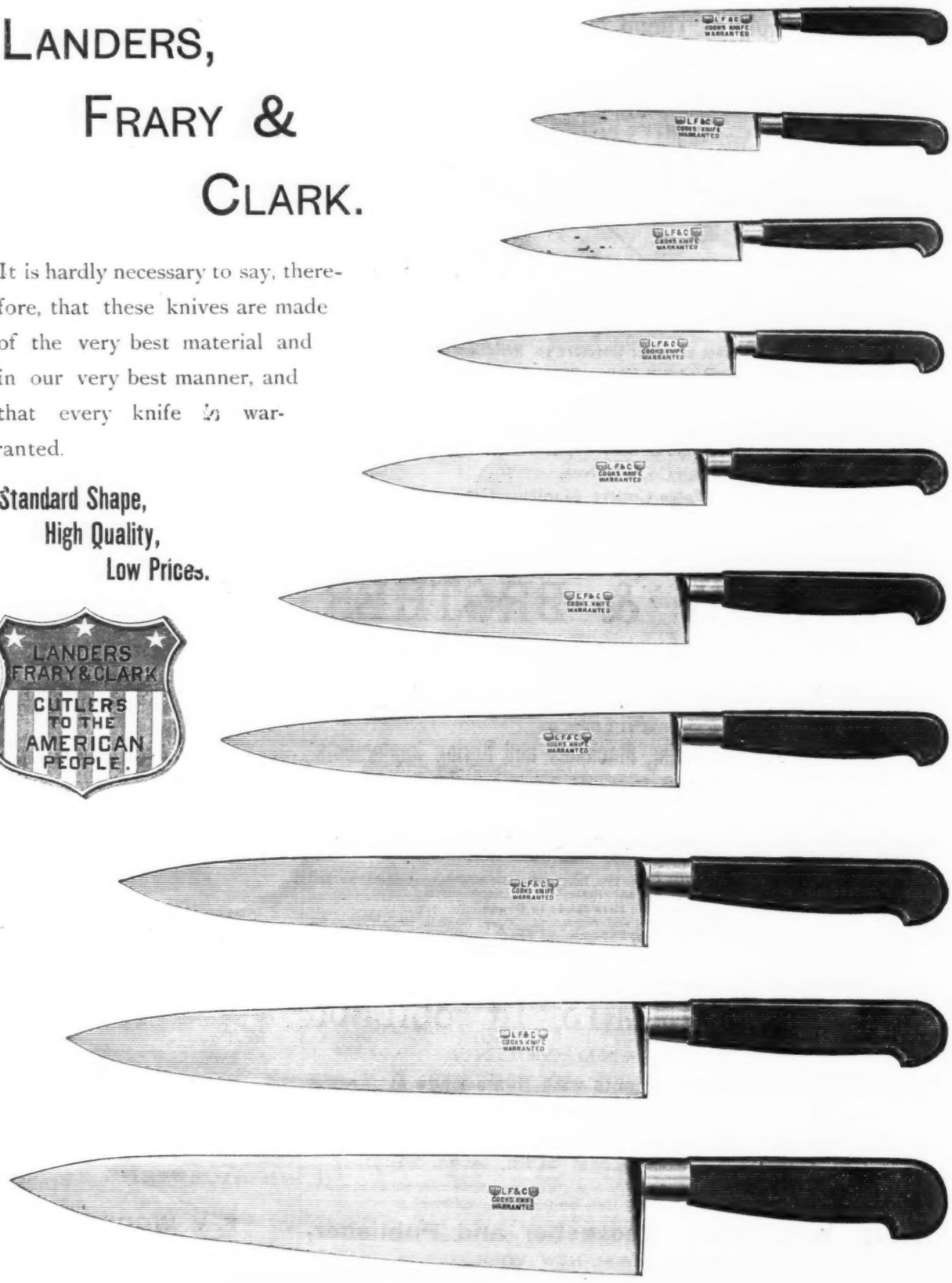

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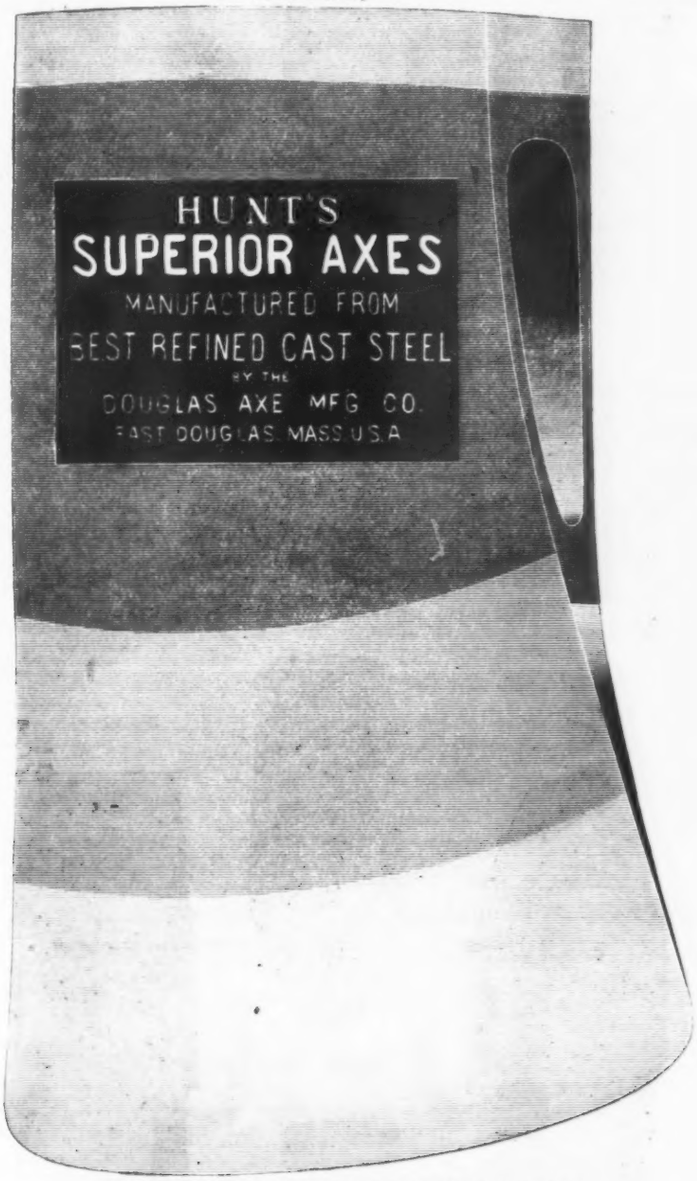

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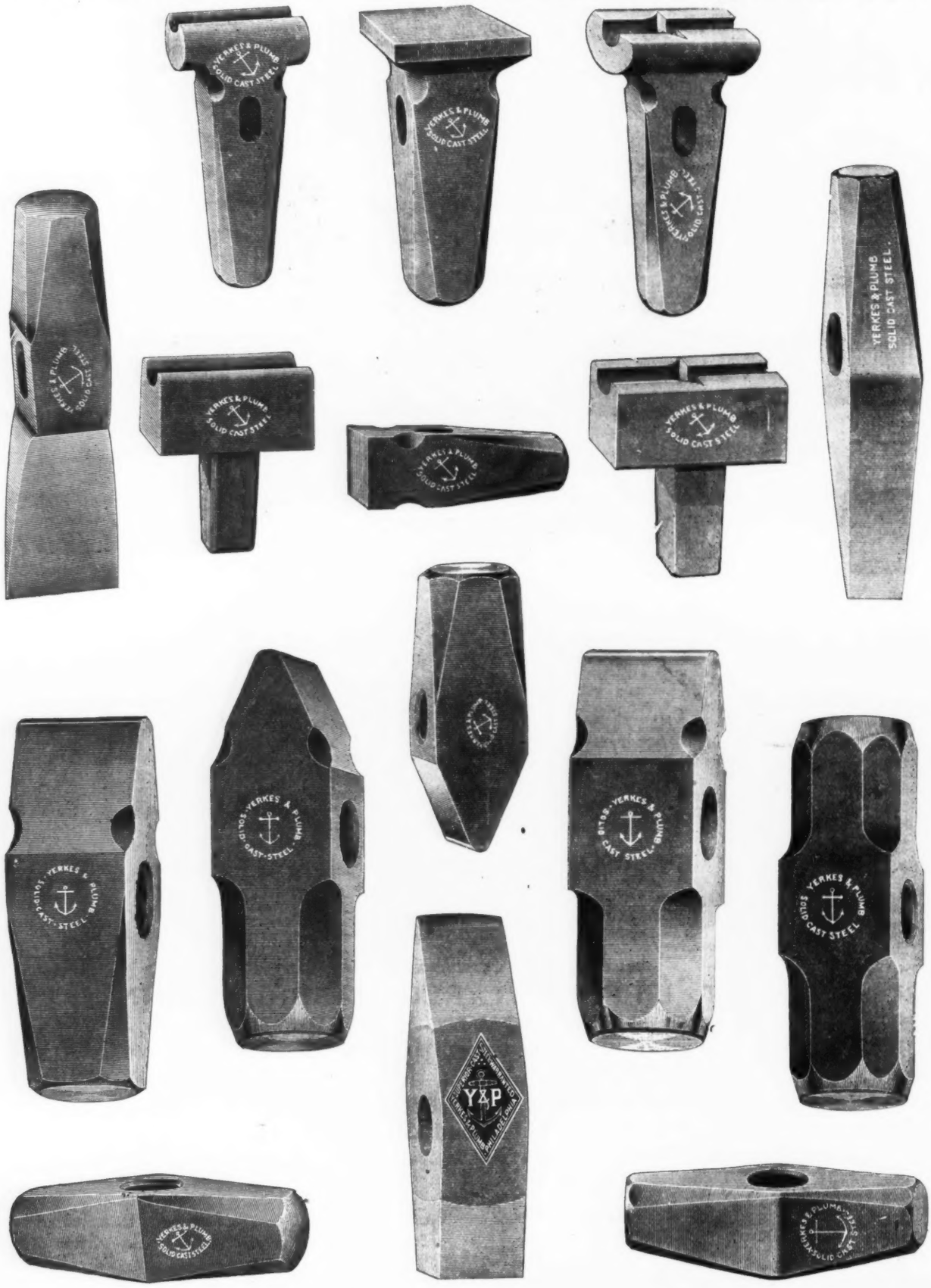

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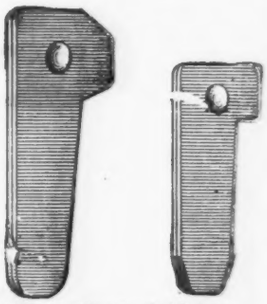
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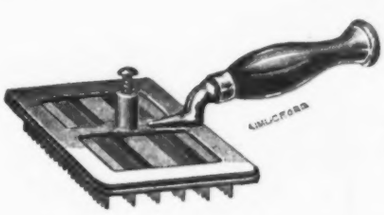

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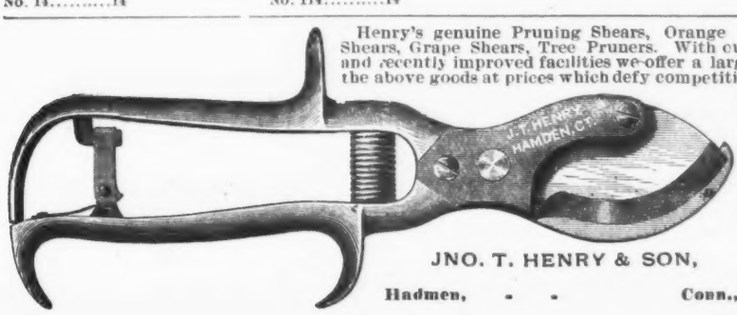

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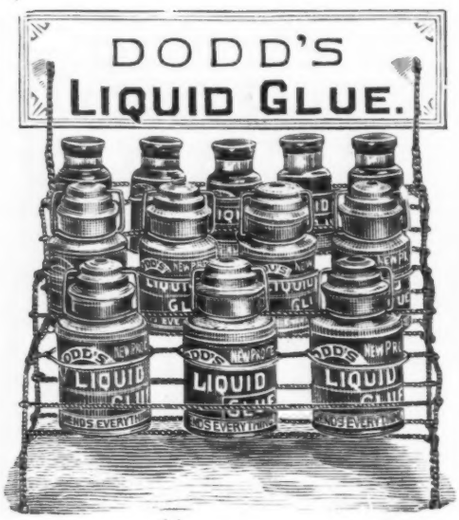

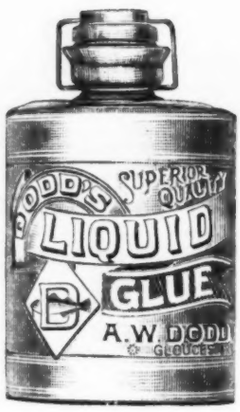

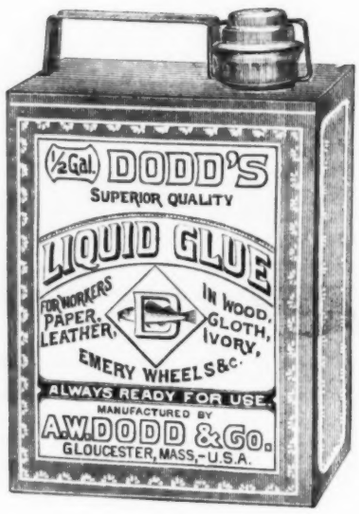

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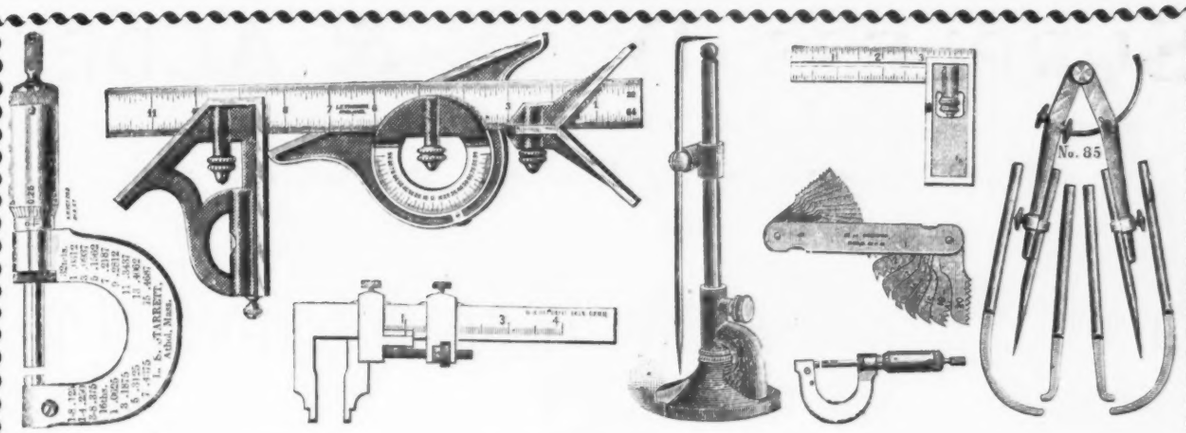

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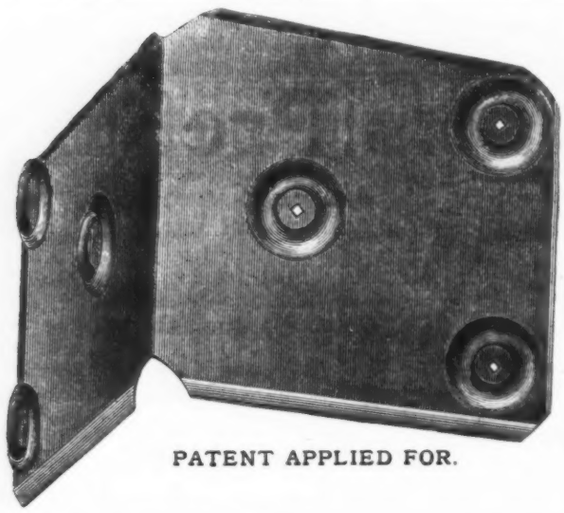

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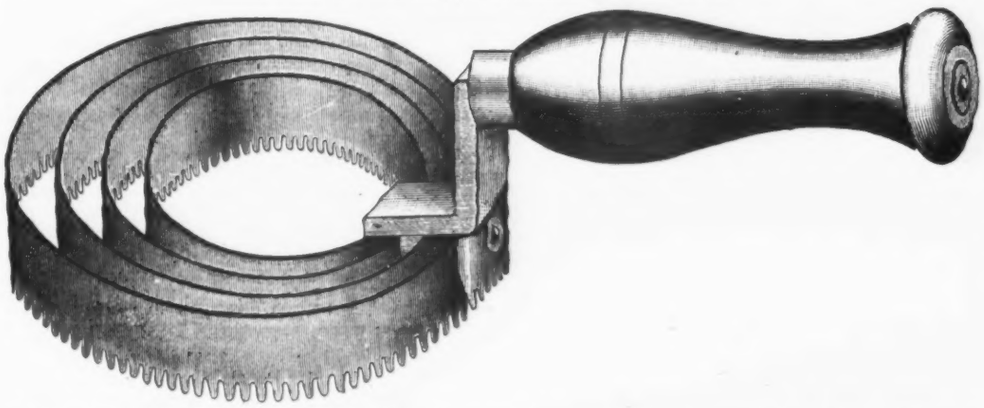

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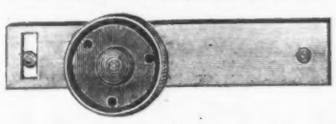

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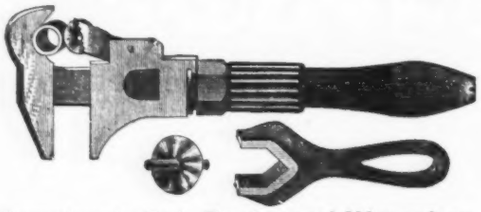

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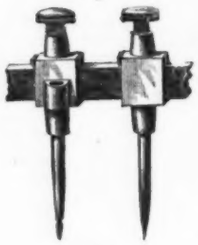

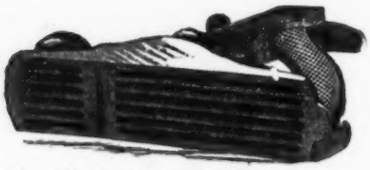

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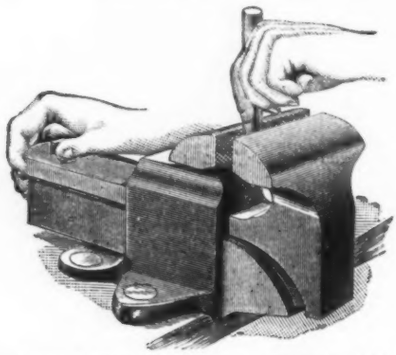

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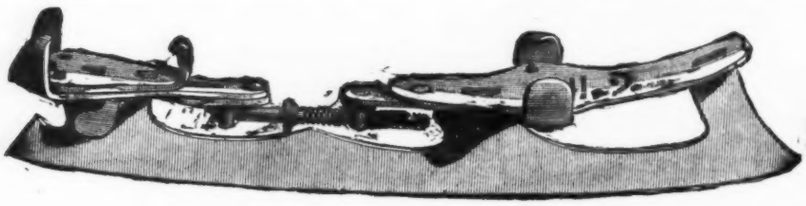

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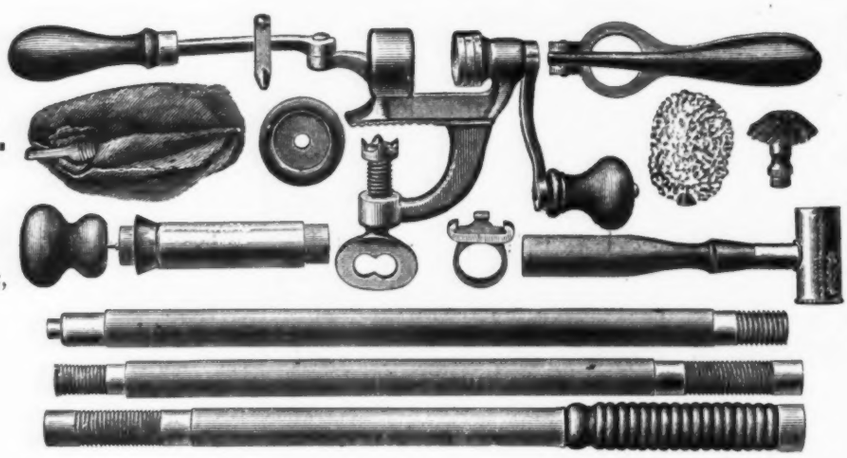

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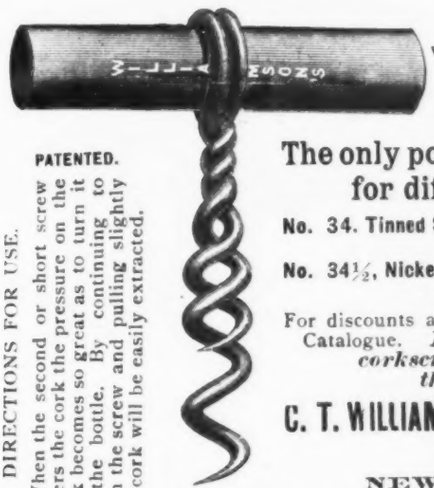

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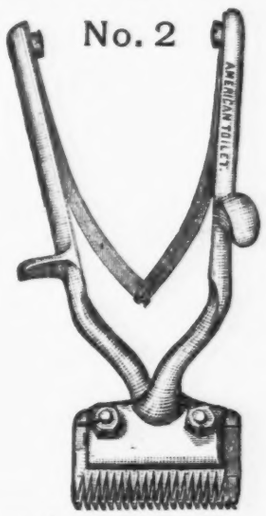

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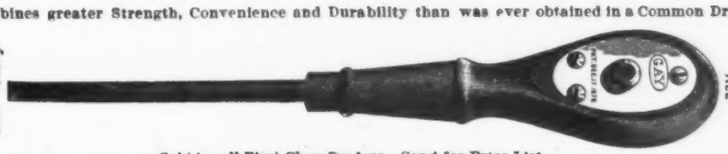

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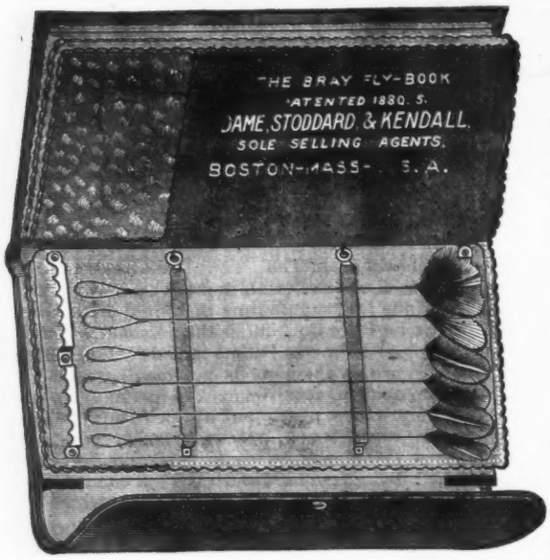

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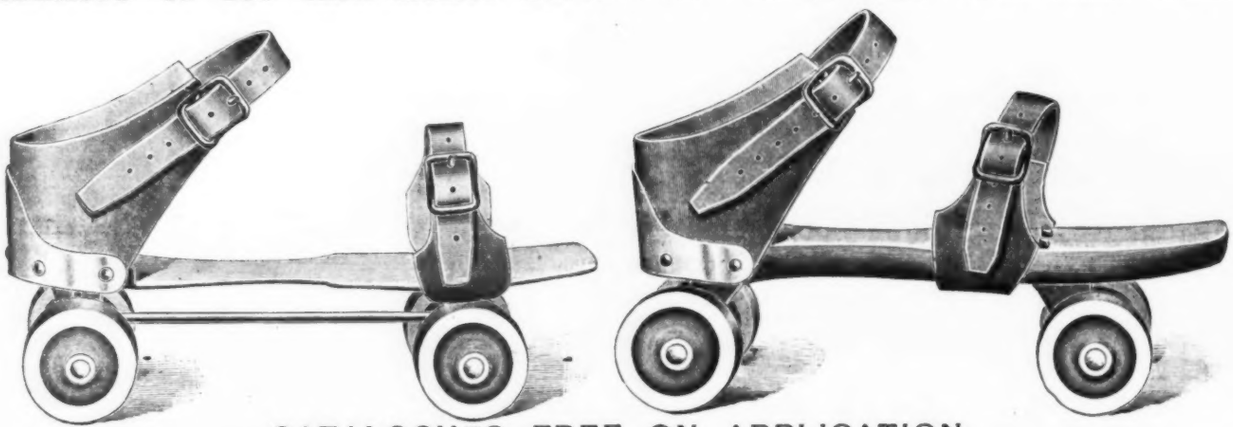

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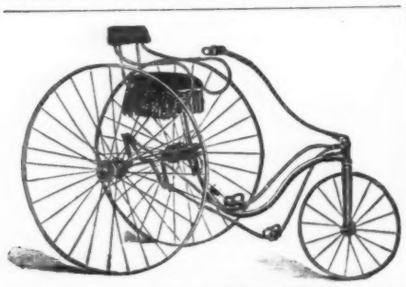

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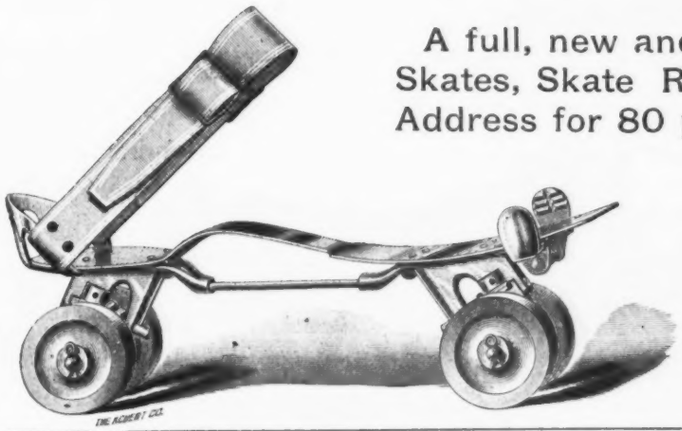

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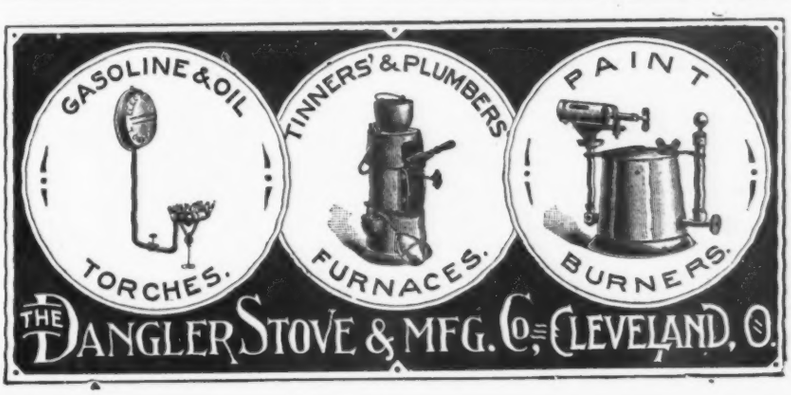

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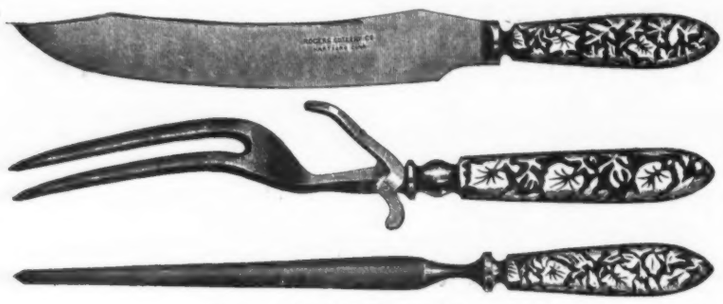

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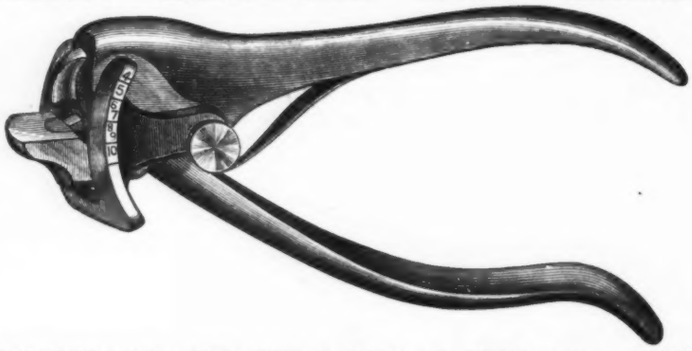

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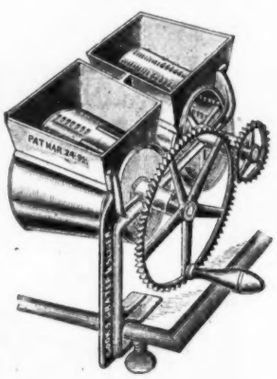

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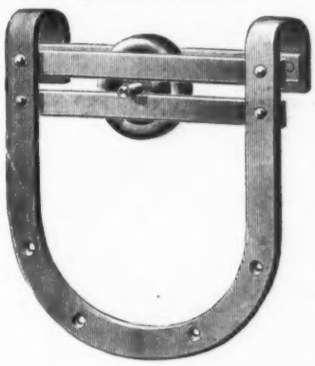

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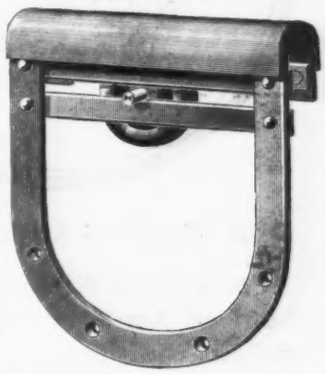

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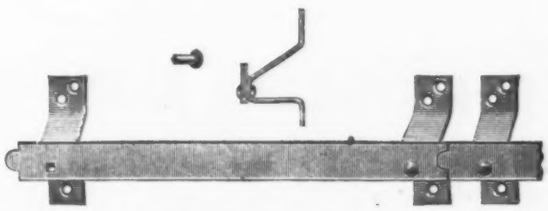

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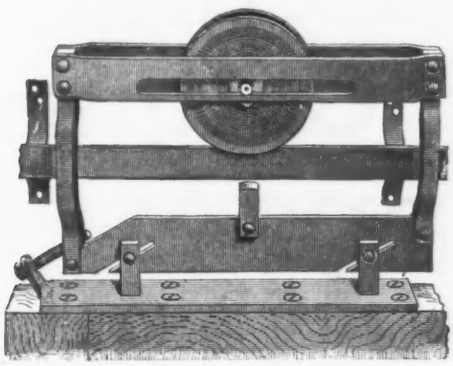

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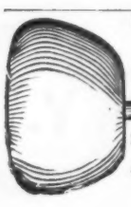

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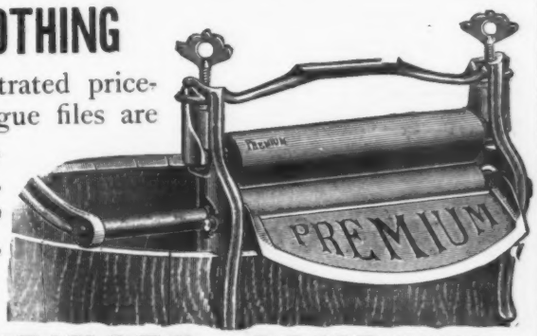

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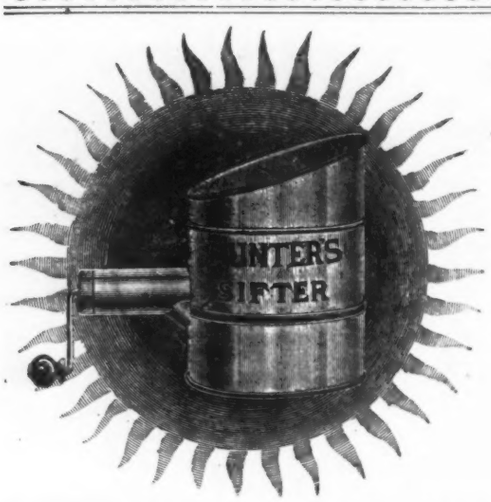

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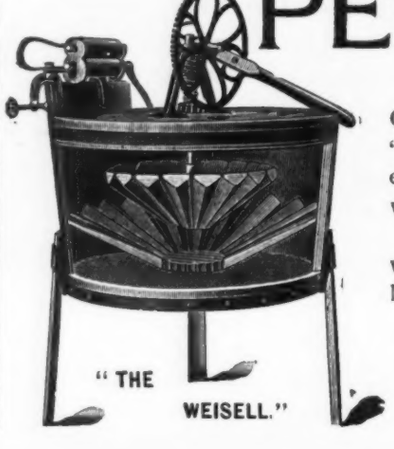

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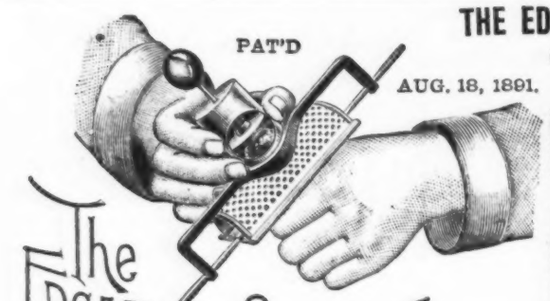

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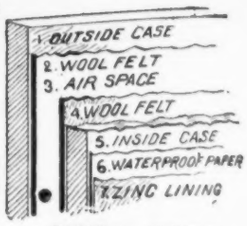

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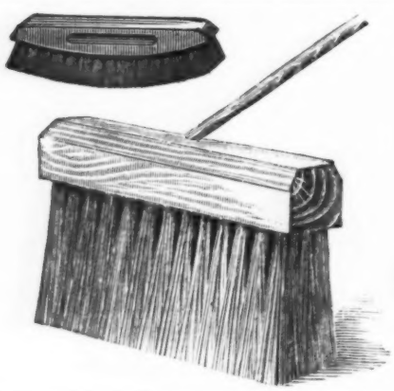

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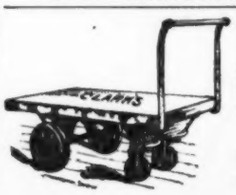


TRUCKS of all kinds Mounted on rubber or iron wheels. Trucks made to order. Write for prices. Catalogues free.

G. P. CLARK, Box O,
Windsor Locks, Conn

THE NORWICH LOCK MFG. CO.,
OF ROANOKE, VA.

Roanoke Va., March 1, 1892.

Our new catalogue and price-list is now ready for distribution. It is a book of 404 pages, $10\frac{1}{2}$ x $12\frac{1}{2}$, printed on heavy paper, and contains illustrations and descriptions of a complete line of locks, knobs, keys, escutcheons, bell pulls, padlocks and builders' hardware.

A copy will be furnished without charge to any house whose purchases from us during the year 1891 amounted to $100 net, and will be sent with the first goods ordered, or by express, not prepaid. To others we make a charge of $5.00 per copy, which amount will be deducted from account as soon as same amounts to $50.00 net. The book is too large to be sent by mail.

THE NORWICH LOCK MFG. CO.,
ROANOKE, VA.

COMING RIGHT ALONG.

OFFICE OF
K. FITCH & CO.,
Hardware, Stoves, Tinware, etc.,
Kansas City, Mo., Jan. 15, '92.

The Sun Stamping Co., Kalamazoo, Mich.

GENTLEMEN:—Yours of the 11th, rec'd and contents noted. In reply, say, that The Morgan Broilers we sold have given so far as we have learned, good satisfaction—*not any complaint.* We have been using one in our house for more than a year, and we could not be induced to part with it for any reasonable consideration. We find it **DOES** the work as represented, when instructions are followed. It **DOES** make meat juicy and tender, and for the purposes for which it is intended, we believe it to be the most economical piece of furniture we have in the house. * * *

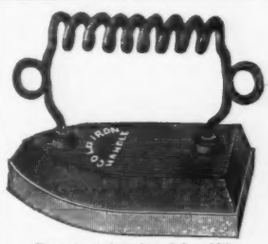
Very Respectfully,
K. FITCH & Co.

Perhaps there is a gentle hint here for other dealers. The "moral" would be, order a sample lot and be convinced. Unless there is gain in the transaction for you, there is none for us. Once a customer—"always."

The Morgan specialties in tin and sheet metal are manufactured solely by

THE SUN STAMPING CO., - - KALAMAZOO, MICH.,
430 to 460 N. PITCHER ST.

ELIZABETHPORT CORDAGE CO.
Manufacturers of
ROPE AND BINDER TWINE,
46 South Street, New York.



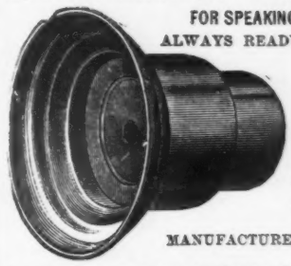
Patented October 6th, 1891.

FERRIS' Cool Handle SAD IRON.

A cooler fixed handle than ever made. Will never get hot enough to burn a holder. If "heater" is used on gasoline or gas stove, or if heated on laundry stove, no holder is necessary. Nearly as cheap as common Sad Irons. Order sample case. For prices address

W. M. FERRIS, 2710 CHESTNUT ST., ST. LOUIS.

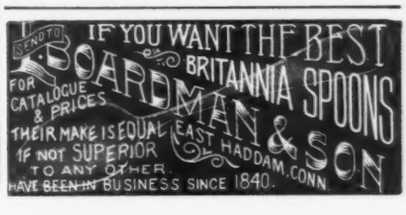
ROSS' PNEUMATIC WHISTLE



FOR SPEAKING TUBES.
ALWAYS READY FOR USE.

NO SPRINGS.
Nothing to get out of order.

MANUFACTURED BY
JAMES FALLOWS & SONS,
229 Arch Street, PHILADELPHIA.



"Branford's" New Cylinder Front Door Lock,

MANUFACTURED BY THE

Branford Lock Works, Branford, Conn., U. S. A.

ESTABLISHED IN 1868.

We have a full line of Cylinder Work, for which we will quote prices on application.

Our patented CYLINDER is a new departure, as it is constructed on an entirely new principle, viz.: Attaching the cylinder to the Escutcheon. This insures simplicity in adjusting the lock to the door.

FOR SALE BY THE HARDWARE TRADE GENERALLY.

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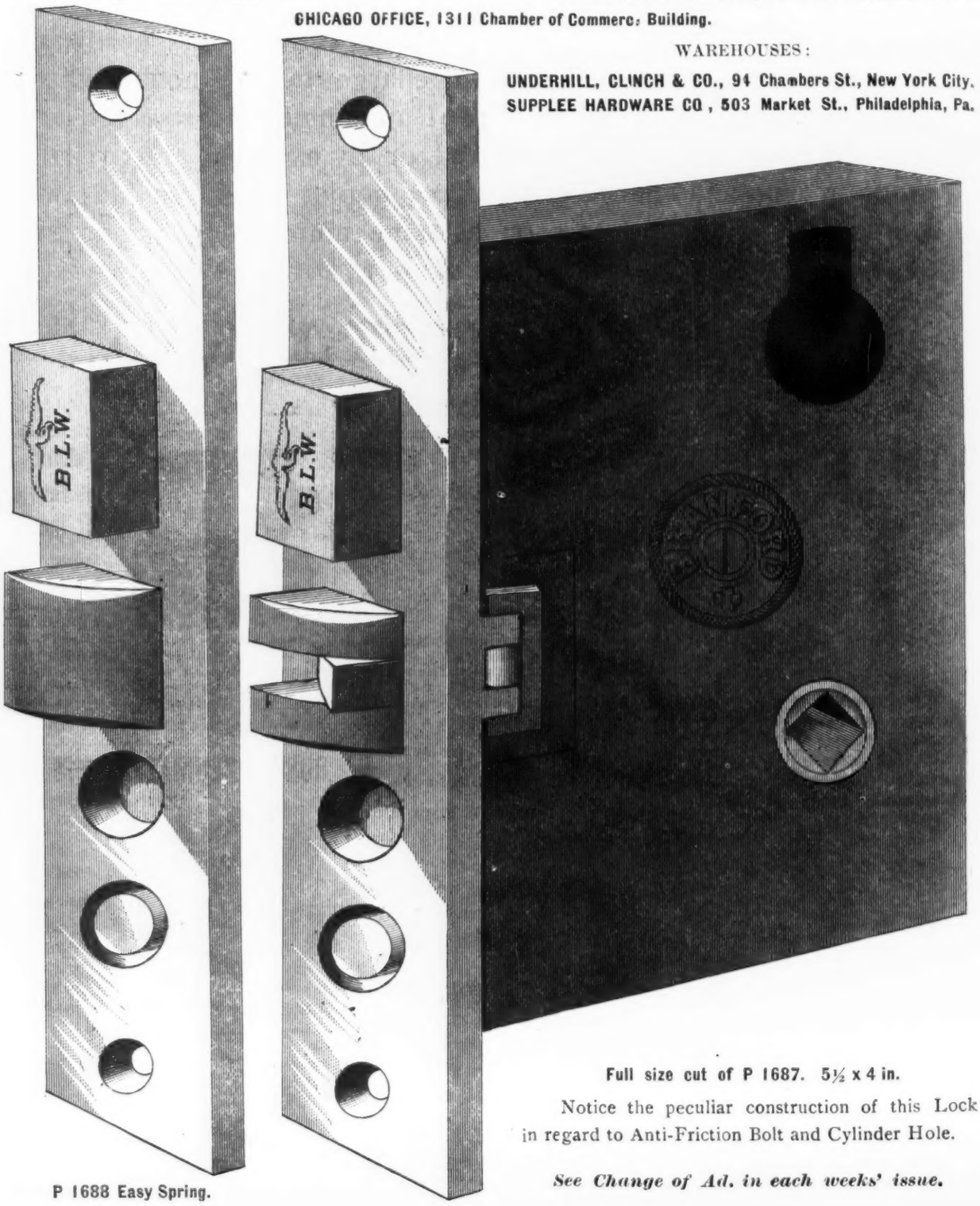
CHICAGO OFFICE, 1311 Chamber of Commerce Building.

WAREHOUSES:

UNDERHILL, CLINCH & CO., 94 Chambers St., New York City.
SUPPLEE HARDWARE CO., 503 Market St., Philadelphia, Pa.



P 1688 Easy Spring.

Full size cut of P 1687. 5½ x 4 in.

Notice the peculiar construction of this Lock in regard to Anti-Friction Bolt and Cylinder Hole.

See Change of Ad. in each weeks' issue.

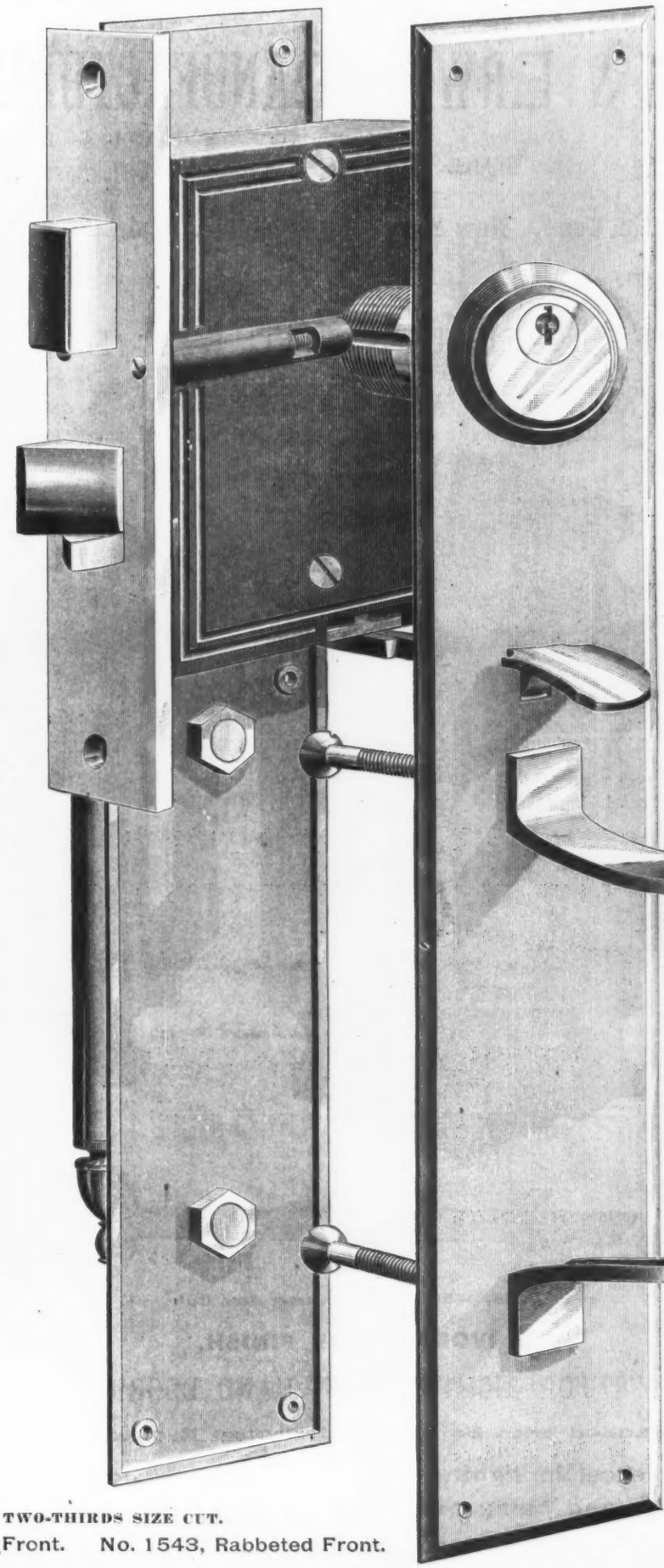
"VASSAR"

Store : Door : Handle : and : Lock.

MANUFACTURED BY

READING HARDWARE CO., Reading, Pa.

WAREHOUSES: New York, 81 Reade St, PHILADELPHIA, 514 Commerce St. CHICAGO, 73 Wabash Ave.



4 German Silver Keys with each Lock.

SIZE OF PLATES, 15 x 2½ INCHES.

LOCK, 5 x 3½ INCHES.

TWO-THIRDS SIZE CUT.

No. 1541, Flat Front. No. 1543, Rabbeted Front.

TEMPORA MUTANTUR ET NOS MUTAMUR IN ILLIS.

WROUGHT STEEL DOOR LOCKS.

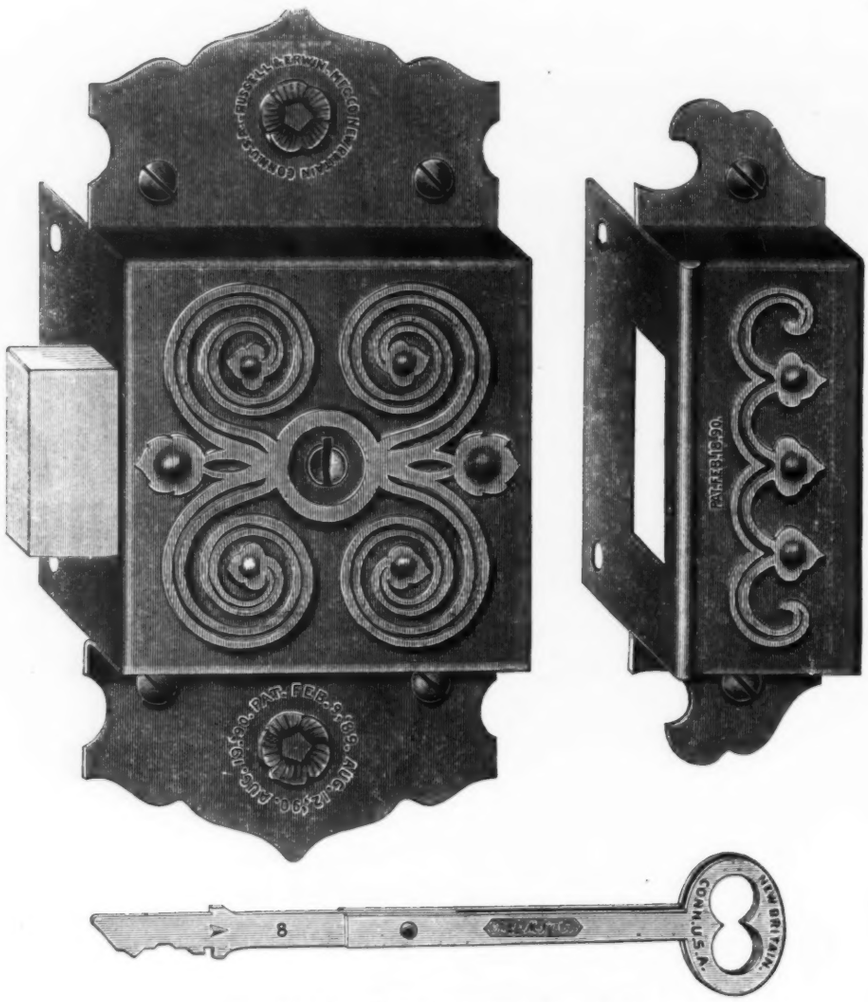
RUSSELL & ERWIN MANUFACTURING CO.,

SOLE MANUFACTURERS,

New Britain, Conn. New York. Philadelphia. Baltimore. London.

WROUGHT STEEL UPRIGHT RIM DEAD LOCKS.

WITH CYLINDER.



No. 3450. Three-quarter Size Cut.

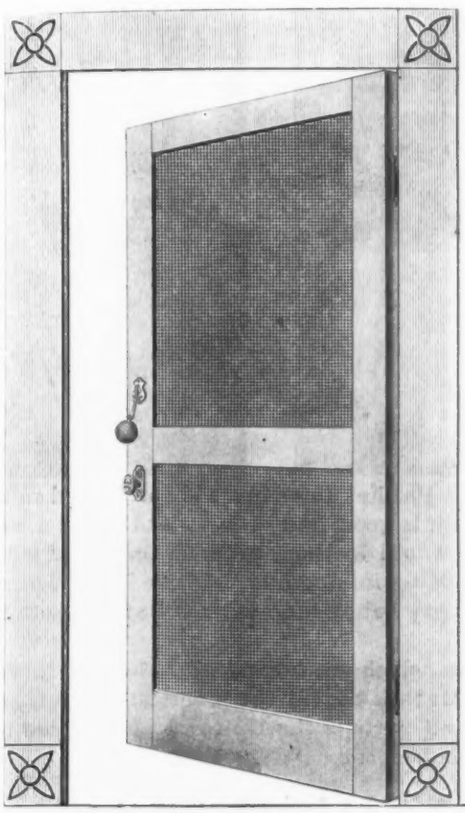
IVORY BLACK FINISH.

FOR RIGHT OR LEFT HAND DOORS.

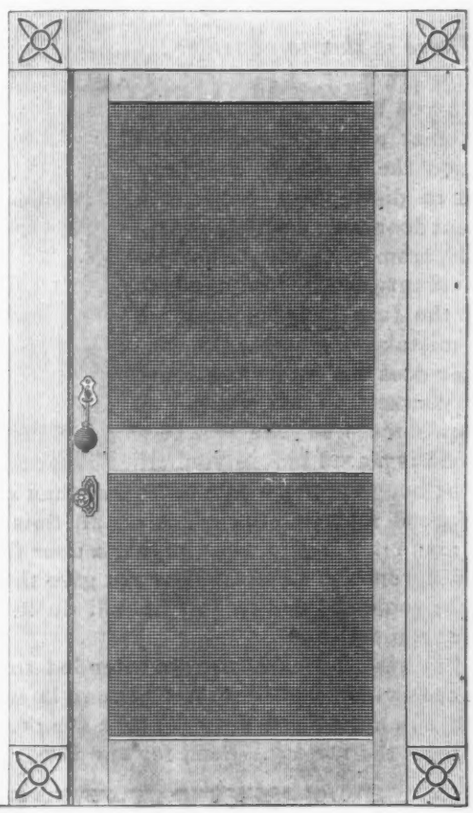
Packed with Screws and Bronze Escutcheons.

The goods excel in lightness and strength, in beauty of design, and novelty of finish; and being made from wrought metal, are uniform in size and exact in measurement.

"NO-SLAM" Patent Screen Door Checks.



Showing the Door Closing.



Showing the Door Closed and the proper position for placing the Check.

This cut is about two-thirds size.

SIMPLE,

DURABLE,

EFFECTIVE.

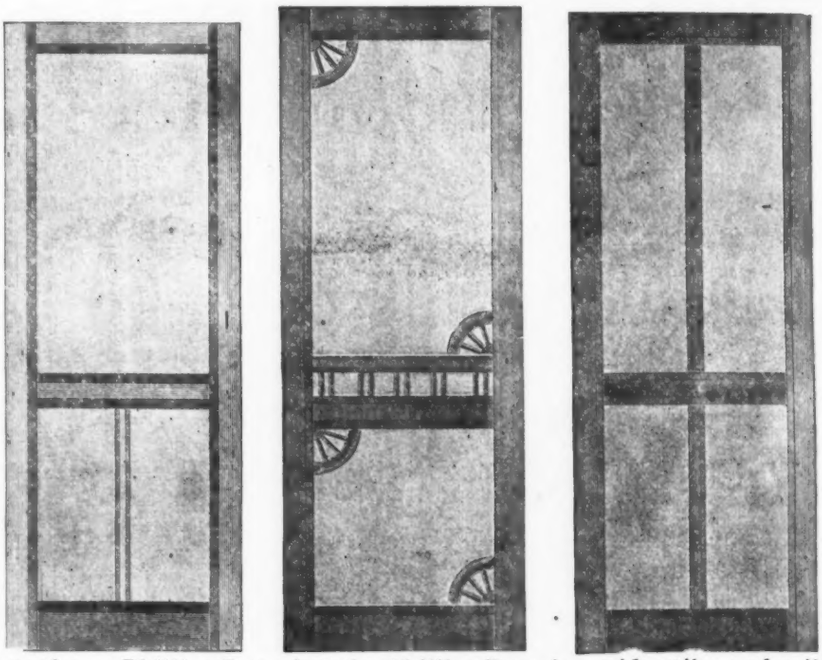
The "No-Slam" is an Automatic Check for Screen and other light doors which can be applied in connection with any Door Spring or Spring Hinge. It has a Solid Rubber Ball, Nickel-Plated Trimmings, and is a durable Check which will not rack the door. Packed with simple directions for applying; complete with Screws.

—Manufactured by—

SARGENT & CO., New Haven, Conn., and New York.

SOLD BY ALL HARDWARE DEALERS.

IN REGARD TO SCREEN DOORS,



There is this to consider:

Do you wish to furnish your customer a really good article? Is not the average consumer able to distinguish between a decent door and an article poorly made, from poor stock, narrow and scanty, with rough edges and the fuzz hanging out? It is a mistake to suppose the consumer does not know anything. Put yourself in his place. A cheap door like the one described is placed before you. It can be bought for 2 whole cents less than a Phillips Door, but the Phillips Door has wide stiles and rails, is of good material, the edges are all finished, everything about it is good, and it looks as though a *man* had made it. If you were buying a door for *yourself*, the 2 cents would look *mighty small* compared with the difference in values. Why not give the consumer credit for being intelligent? He can buy a decent article somewhere else, and he will do it. Good goods always pay better margins than stuff made to "meet competition."

Phillips' ⅞ inch Doors are intended to hang on casing blocks, which are furnished. The Door overlaps the casings and does not have to be mutilated to get a fit. It thus has all the practical advantages of an *Adjustable Screen Door*. These Doors are sold by jobbers in all parts of the United States, or can be had from the factory. Send for our illustrated catalogue of Screen Goods.

A. J. PHILLIPS & CO., Fenton, Mich.

Perfection Sash Balance

Trade-Mark.

The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

Each balance is fully warranted for ten years.

PERFECTION SASH BALANCE CO.,

ROCHESTER, N. Y.

"FISH" SASH LOCK.

Best and cheapest substitute for cords and weights in new or old buildings of moderate cost.

SAMPLES FREE.

J. R. CLANCY, - SYRACUSE, N. Y.

THE SMITH & EGGE MFG. CO.

BRIDGEPORT, CONN.

THE GIANT PAD LOCK.

Centennial Award. "Superior in Every Respect

This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

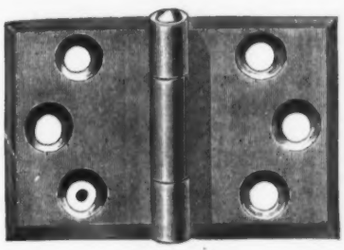
THE GIANT METAL SASH CHAIN

is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."

STEEL HINGES AND BUTTS.

STANDARD GOODS.

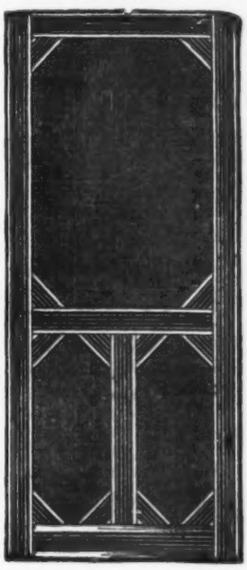
McKinney Mfg. Co., Allegheny, Penn.



We are the largest manufacturers of these goods in the **World**, and there are

"NONE BETTER."

I. X. L.



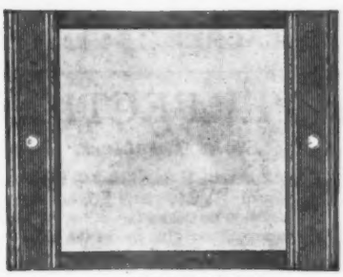
QUEEN ANNE SCREEN CO.,

BURLINGTON, VERMONT.

EVERYBODY knows our "QUEEN ANNE" and "EUREKA" SCREENS. We have a new one, "THE LEADER," a Spring Screen, with a Metallic Slide.

The Newest and Best Thing Out.

"EUREKA."



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New Goods and New Prices.

Sticks and Corners FOR DOORS & WINDOWS.

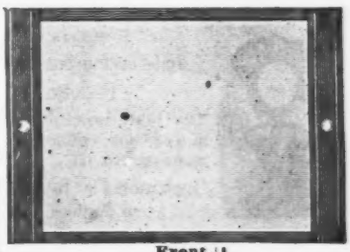
SEND FOR CIRCULAR.

JOHN H. GRAHAM & CO., Gen'l Agents,

113 Chambers Street, New York.

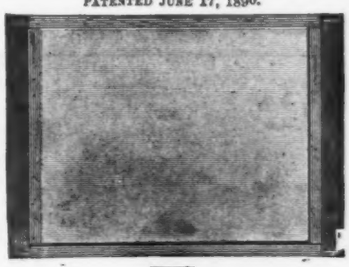
Our New Spring Screen,

"THE LEADER."



Front.

PATENTED JUNE 17, 1890.



Back

THE STANLEY WORKS, New Britain, Conn.

—MANUFACTURERS OF—

Wrought Steel Butts. ★	Wrought Steel Bolts. ★	Wrought Steel Hinges. ★	Wrought Steel Specialties. ★	Tacks, Brads, Nails, ★	and Blind Trimmings.

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The Bridgeport Chain Co.'s Triumph Chain, made into Halters, Traces, Cow Ties, Tie-outs, Kennel Chains, &c.; also cut to lengths for manufacturers' use.

The cut represents the exact size of 6/0

FACTORY AT BRIDGEPORT, CONN.

KENTON LOCKS.

HAVE YOU HAD OUR PRICES?

Kenton
Lock Mfg. Co., Kenton, O.

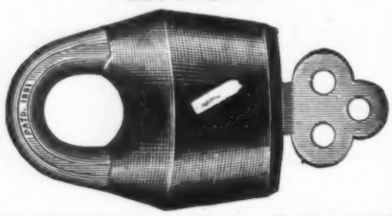
Lock Mfg. Co., Kenton, O.

KEYSTONE LOCK WORKS,

—Established 1879.—

E. T. FRAIM, Lancaster, Pa., U. S. A.

MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS**, in 56 grades and sizes. Key and **Self-Locking.** Brass, Bronze and Malleable Iron. Red, Black, Bright and Bright Brown finish. We make no Cast Iron goods. High class goods at same price as the inferior imitations. All fully illustrated and described in our new catalogue, furnished free.

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SLAYMAKER, BARRY & CO.,

DIAMOND LOCK-WORKS,
Lancaster Pa., U. S. A.
Sole Mfrs. of

Self-Locking Scandinavian Padlocks.

The best, most durable, and most convenient Padlocks made; of No. 427

Unpickable Flat Bronze Spring Padlock,

Most secure, and finely finished Padlock made, and of Lancaster Drive Sash-Pulleys, best and cheapest Sash-Pulleys on the market.

Pat. Nov. 15, '89. March 18, '90.

THE CHAMPION
Meeting-Rail Sash Lock

Has the greatest efficiency and a larger amount of the finest trade with first-class Hardware dealers than any other Sash Lock, showing the high appreciation of Architects, Builders and Dealers.

THE CHAMPION SAFETY LOCK CO.,
74 Frankfort Street, CLEVELAND, OHIO.

HARDWARE DEALERS

CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

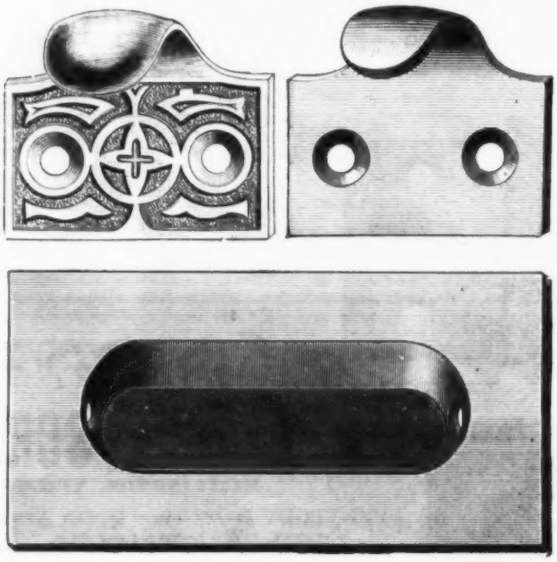
MANUFACTURED ONLY BY

"THOMAS MORTON,"
65 Elizabeth Street,
Write for Prices. NEW YORK.

HOOK AND FLUSH SASH LIFTS

IN BOTH PLAIN AND ORNAMENTAL PATTERNS.

Iron, Brass AND Bronze.



Any Style OF Finish.

The CLAFLEN MFG. CO.,
OFFICE, 71 and 73 Ontario St.
FACTORY, 30, 32, 34 Noble St.
CLEVELAND, OHIO.
W. H. DIFFENBACHER, 154 Lake St., Chicago Agent.

PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes, ¼ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

AMES SWORD CO., Chicopee, Mass.
Send for Price Lists and Circulars.

—THE—

PROSPECTOR'S HAND-BOOK.

A Guide for the Prospector and Traveler in Search of Metal-Bearing or Other Valuable Minerals.

By J. W. ANDERSON, M.A. (Camb.), F.R.G.

Illustrated by 52 engravings. In one volume, 12mo, 132 pages.

PRICE, - - $1.50.

CONTENTS.—CHAPTER I.—Prospecting. II.—Rocks. III.—Testing Minerals by the Blow-pipe. IV.—The Character of Minerals. V.—Metals and Metallic Ores: Their Characteristics, Testing, Occurrence, &c. VI.—Other Useful Minerals and Ores. VII.—Composition of Various Rocks. VIII.—Testing by the Wet Process. IX.—Assay of Ores. X.—Surveying. Appendix, Weights and Measures of England, France, &c., Weights of Various Rocks and Metallic Ores, Specific Gravity of Metals, Metallic Ores and Rocks, Table of Natural Sines, Melting Point of Various Metals, &c., Glossary of Terms used in connection with Prospecting, Mining, Mineralogy, Assaying, &c. Index.

Sent, post-paid, on receipt of price, by

DAVID WILLIAMS, 96-102 Reade Street, N. Y.

VICTOR MFG. CO., Newburyport, Mass.

Showing one-half set of hangers attached to door.

STEEL RAIL.

The Only Bracing Bracket Made.

PRICE LIST.

	Per Doz. prs.
HANGERS.	
No. 5, to run 6 feet, 3⅛ in. wheel,	$10.00
No. 6, to run 10 feet, 4½ in. wheel,	12.00
RAIL, per foot,	6¼ cents.

Sales Agents: CUTLER, WOODROUGH & CO., Chicago, Ill.
WM. H. COLE & SONS, 13 So. Charles St., Baltimore, Md.

The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

CALDWELL MFG. CO., Rochester, N. Y.

READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

STAR LOCK WORKS, PHILA.

HILLEBRAND & WOLF,

MANUF'RS OF

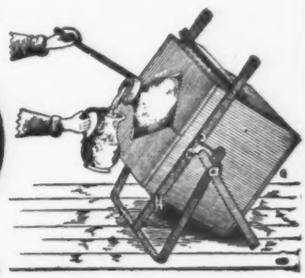
1ST QUALITY ONLY

SCANDINAVIAN AND SPRING PADLOCKS

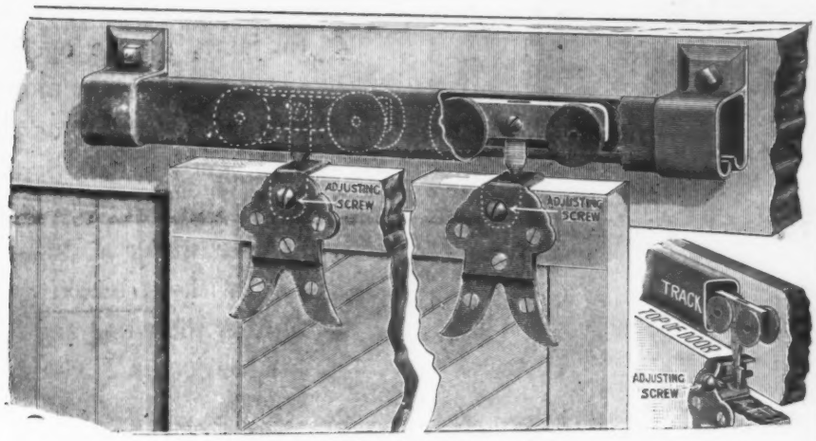
TRUNK & CASE LOCKS

CARBOY STANDS, &C.

CATALOGUES SENT ON APPLICATION.



SHUT THAT DOOR. I CAN'T.

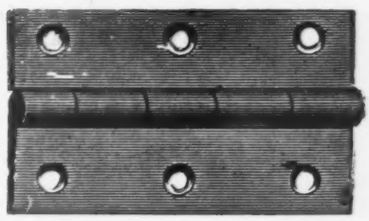


THIS IS CUT OF BARN DOOR.

It's warped. You should have hung it on a Coburn Hanger. The warping of a door does not affect the running of the door on the track. No snow or ice can get into the track to block the same. The axle bearings are self lubricating. I'ts the only covered adjustable track on earth. Write for prices

THE COBURN TROLLEY TRACK MFG. CO., Sole Makers

HOLYOKE, MASS.



Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

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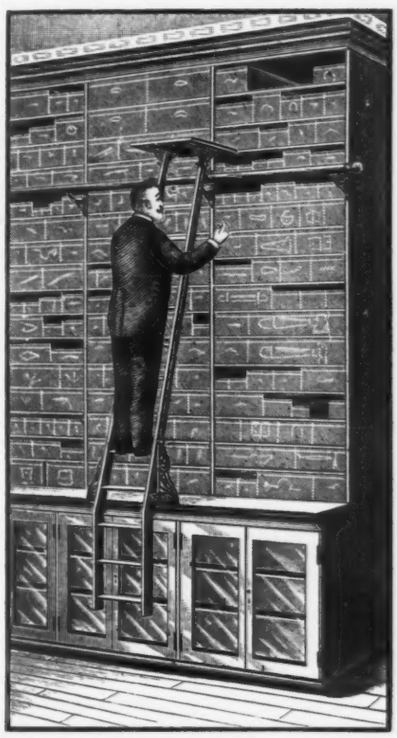
MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY HARDWARE.

WOOD MANTELS

Catalogue free.



THE BICYCLE STEP LADDER.

The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made.

Ladders are not *Suspended*, but *Supported* from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome Made in different grades and prices to suit.

Send for illustrated catalogue and prices to

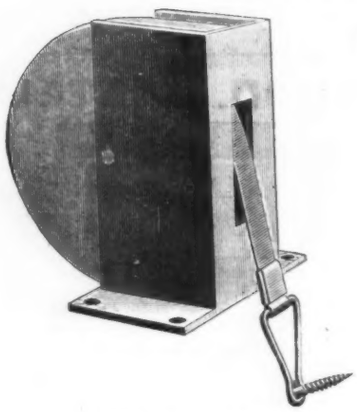
The Bicycle Step Ladder Co.,

217 BRADY ST., - Davenport, Iowa.

"GREATEST ACHIEVEMENT OF THE AGE."

We Stand at the Head Without a Known Competitor for SIMPLICITY, DURABILITY and CHEAPNESS.

THIS is no complication of Sash Ribbon, Pulleys, Attachments, weights, etc. It costs half the money, and lasts twice as long



WALL CASE.

WHAT WE CLAIM:

By the use of a steel frame our Balance is indestructible.

The face plate, having oval ends, can be fitted in the frame twice as fast as the old style square corners.

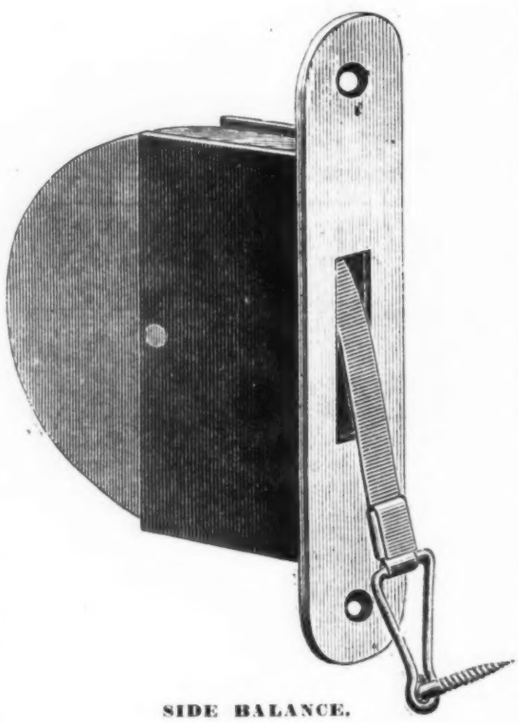
Not a screw in sight to confuse the operator.

The brake, being automatic, is operated according to the tension of the Spring in the Drum when the Tape is drawn out.

The Balance is entirely enclosed, so no dirt can get inside.

The mortise can be made with a common Cast Steel Auger Bit.

Each set of balances contains a diagram, to place on the jamb, so the operator can always bore the mortise correct and true, as well as Roger's Drive Screws, which can be driven in and revolve under a hammer blow without breaking the fibre of the wood and hold ⅓ stronger than Common Screws.



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We use only the finest grade of Oil Tempered Steel Springs, which are fully warranted.

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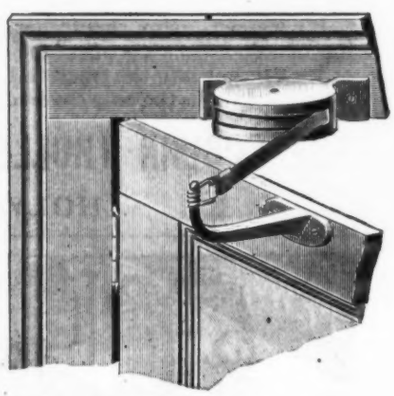

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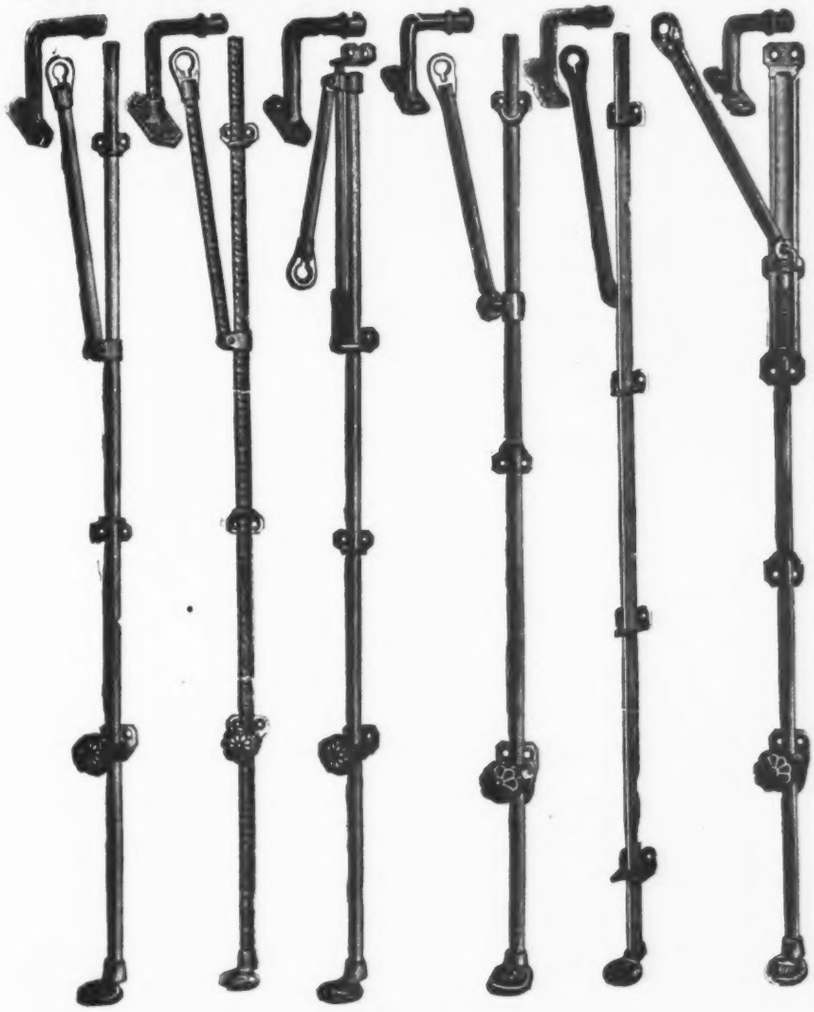

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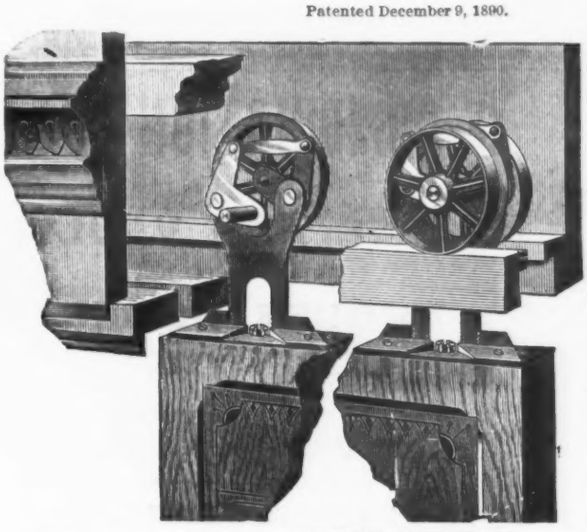

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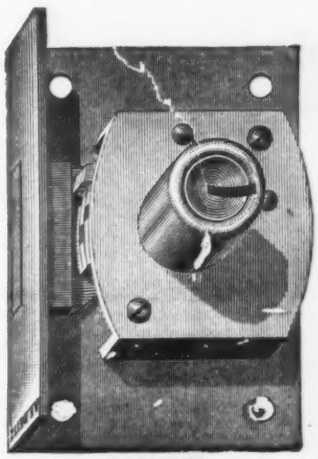

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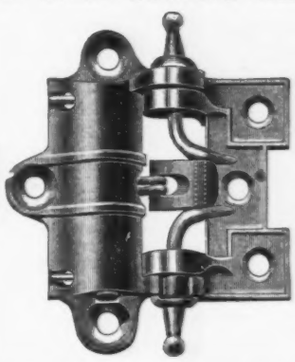

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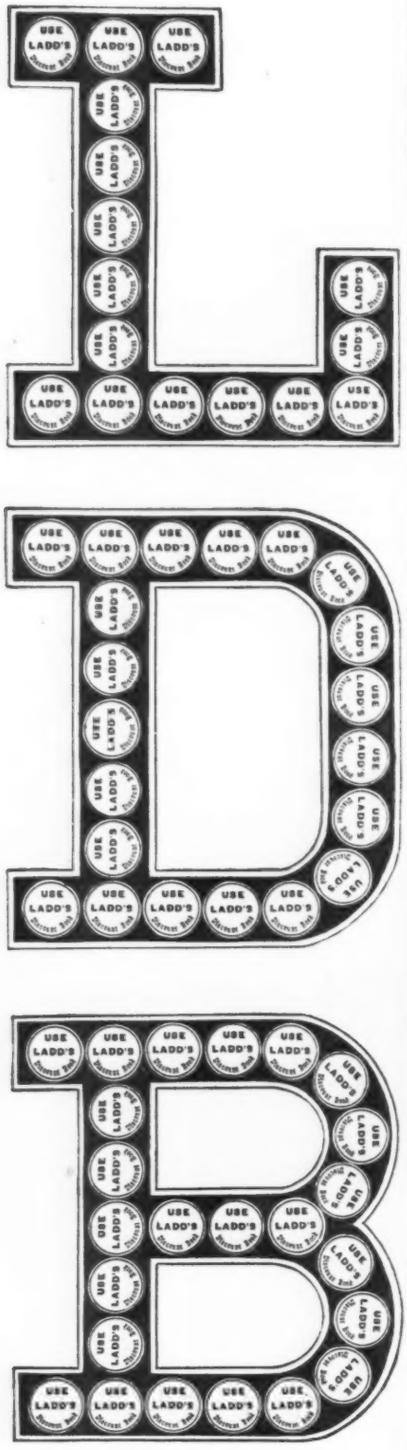

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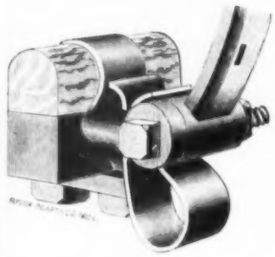

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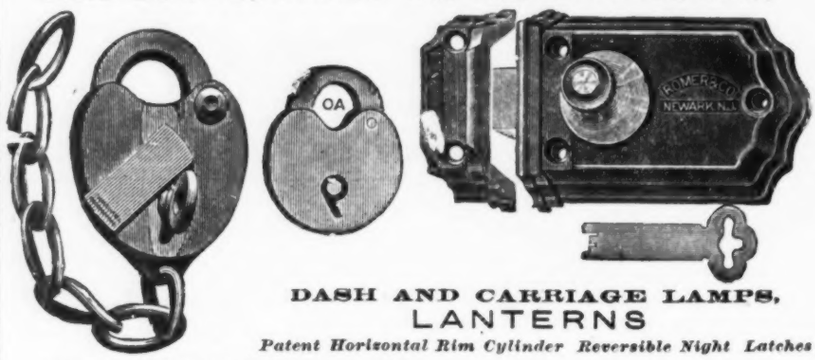

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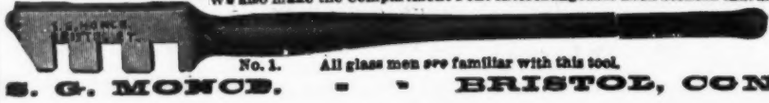

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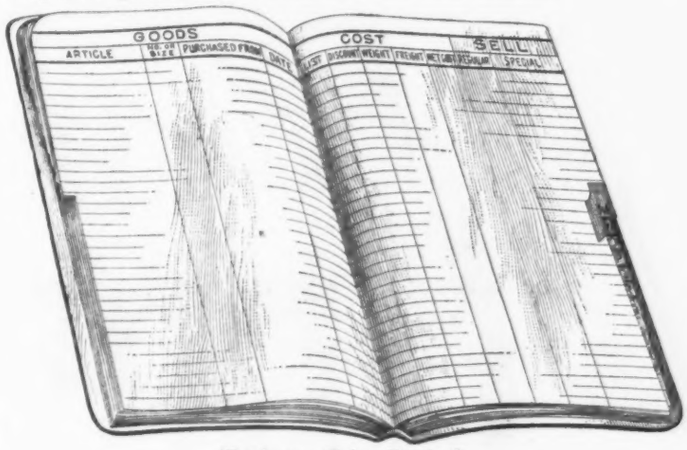

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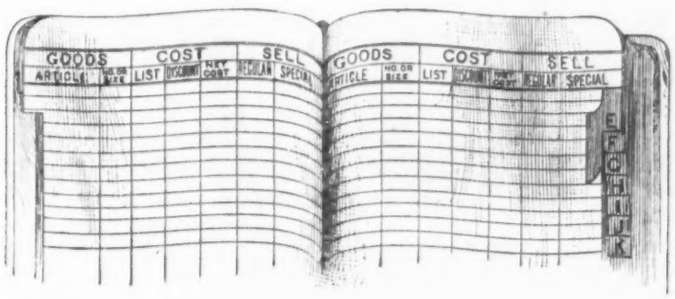

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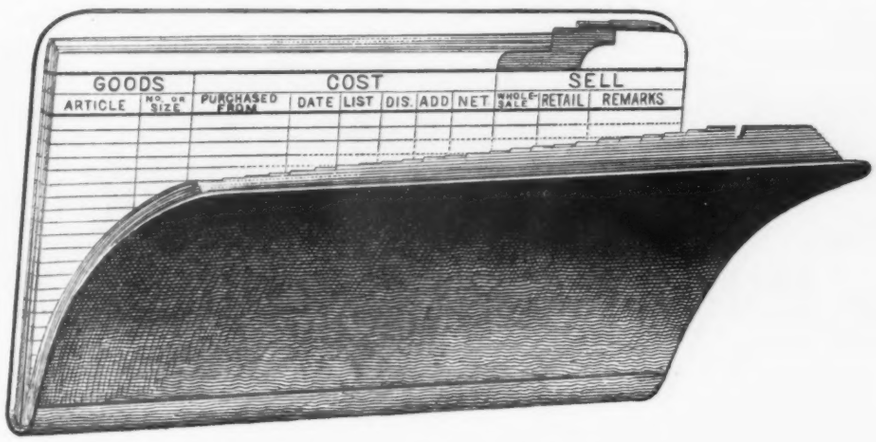

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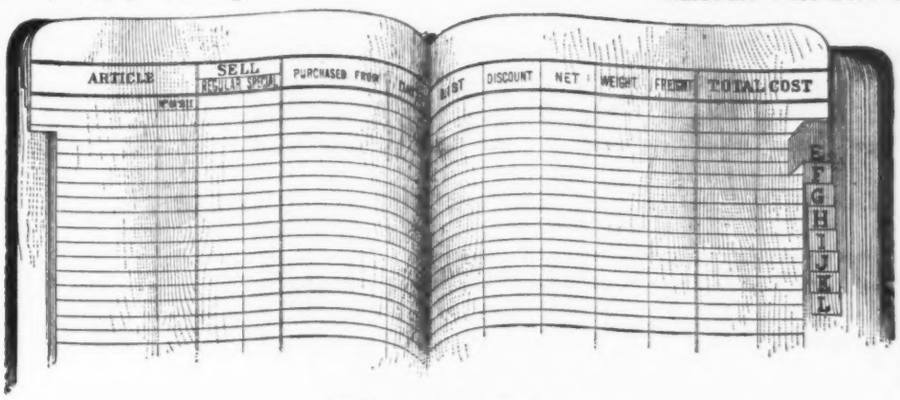

Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction. Size 5¼ x 8 in.; grain seal leather.

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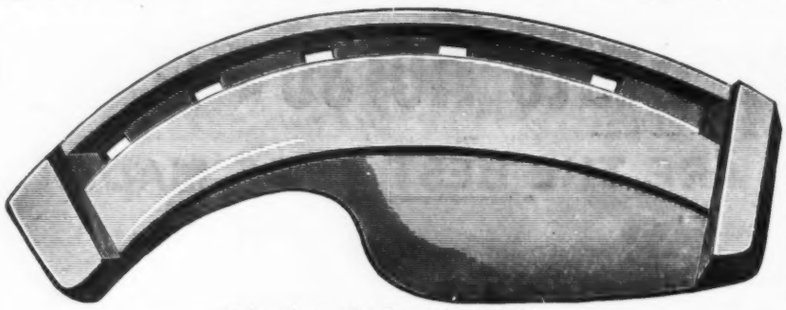

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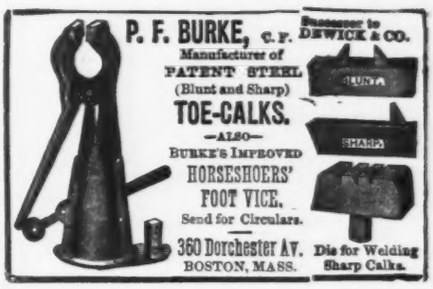

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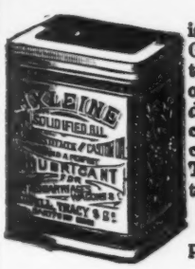

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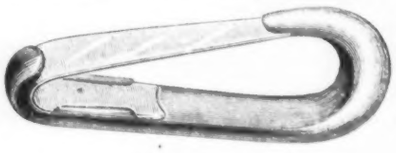

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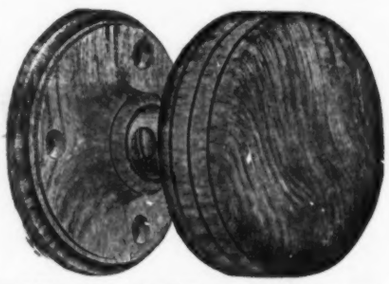

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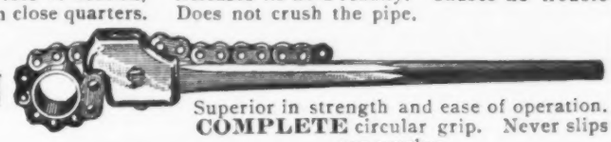

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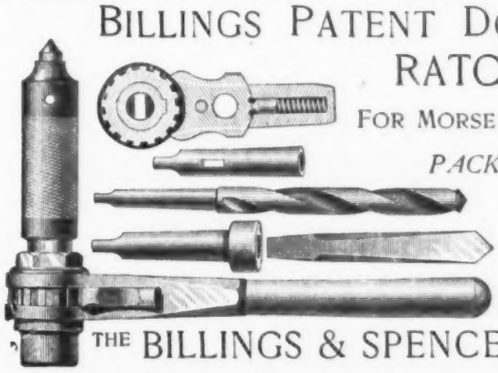

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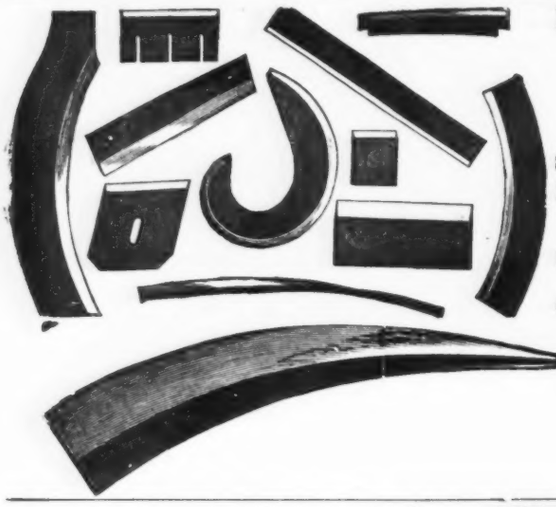

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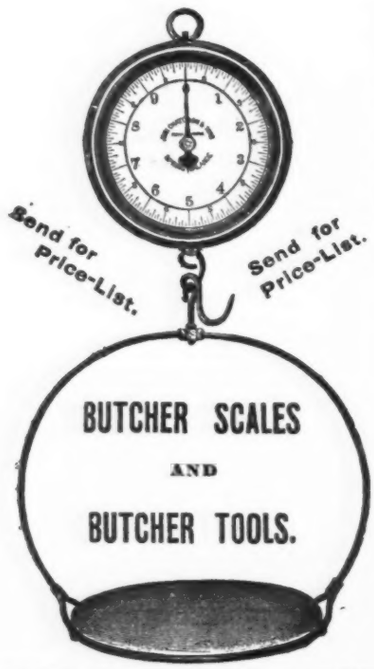

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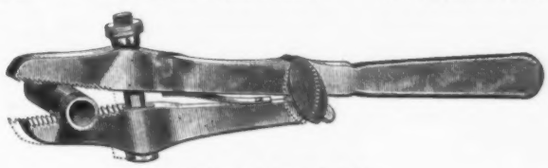

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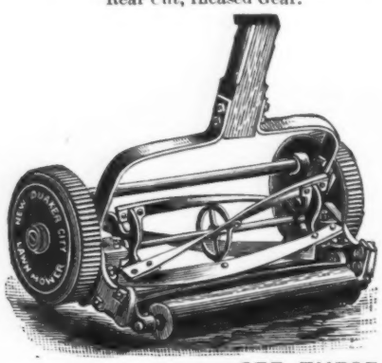

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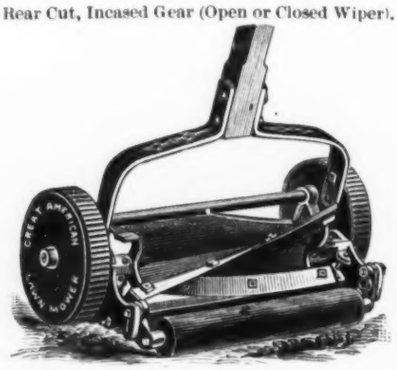

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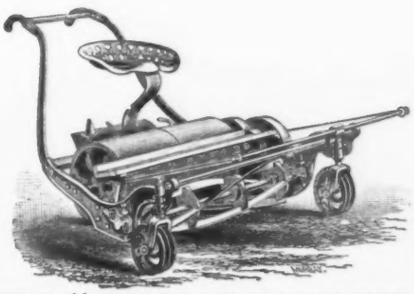

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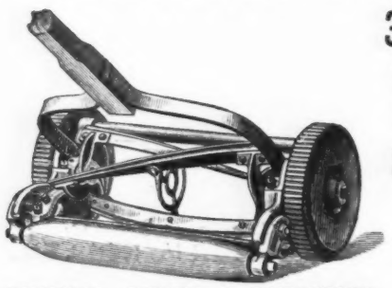

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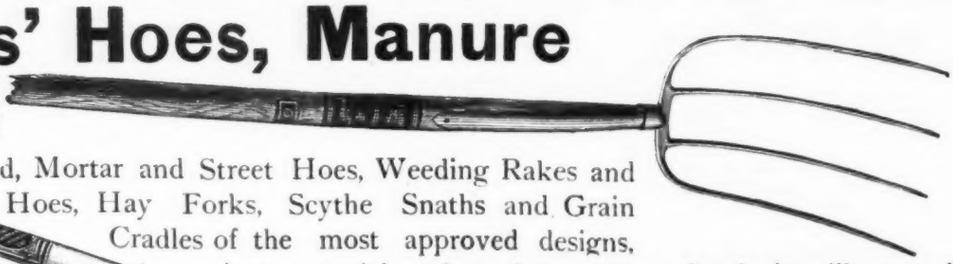

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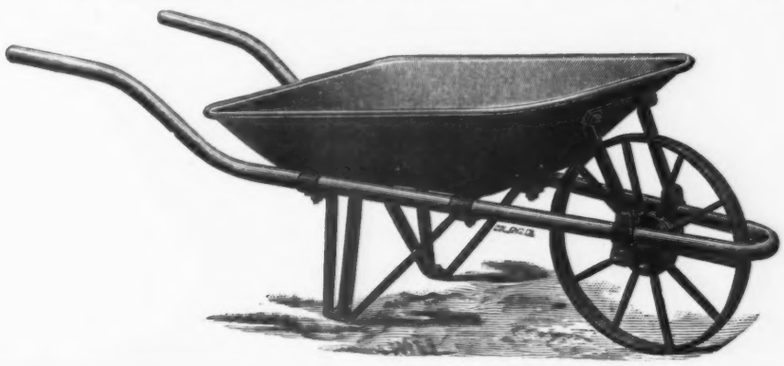

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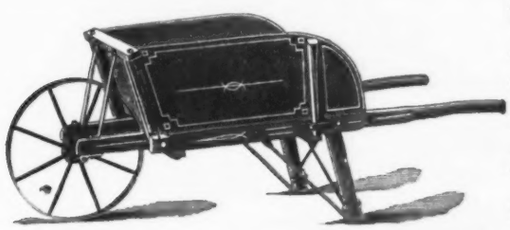

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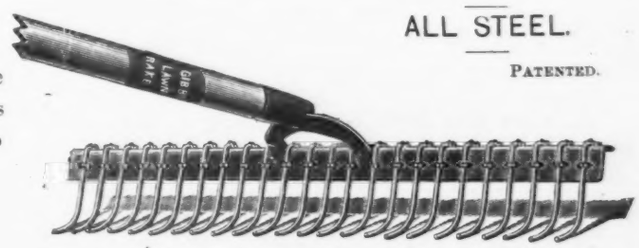

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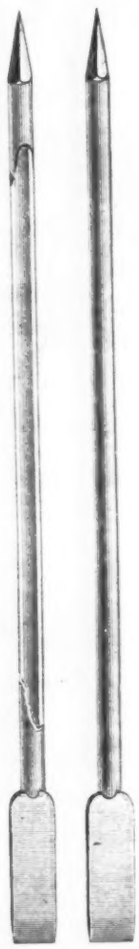

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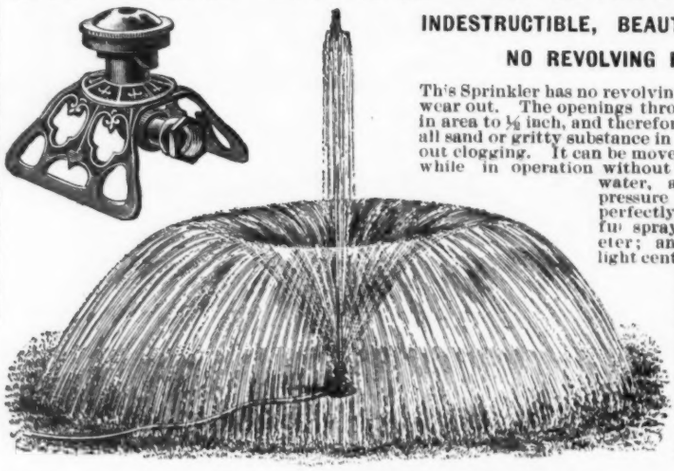

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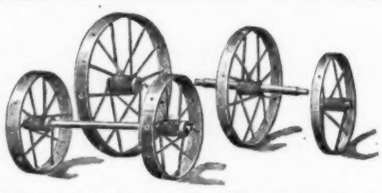

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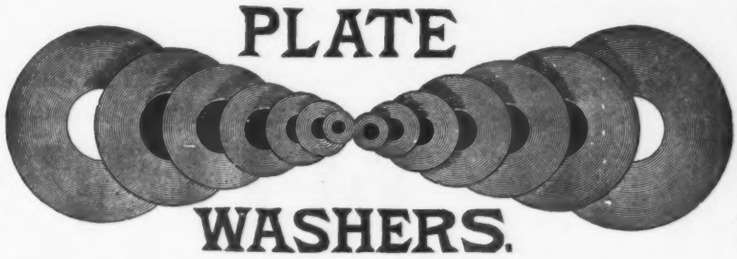

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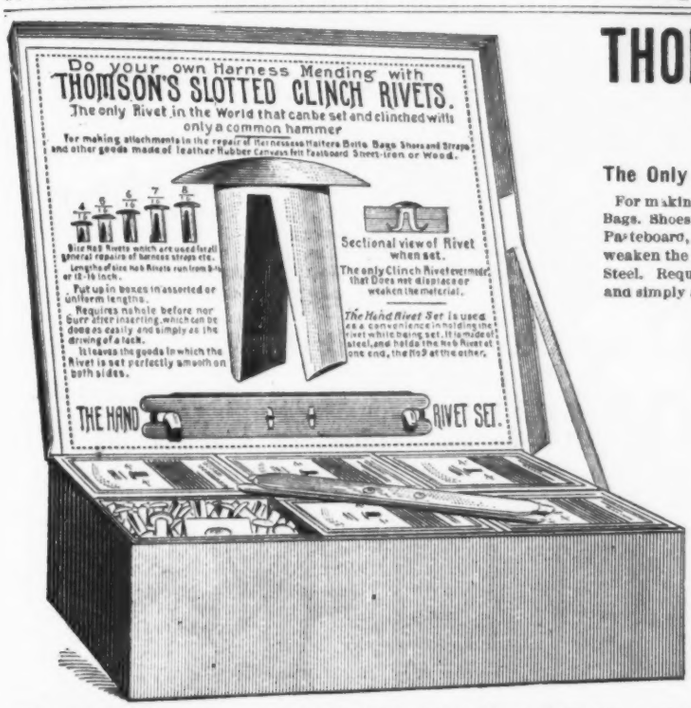

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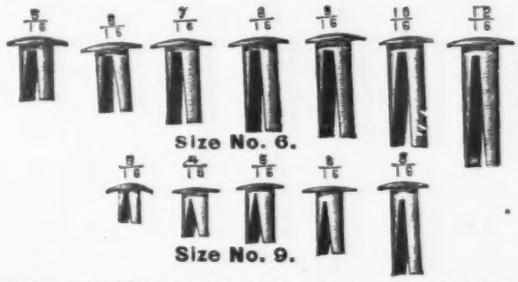

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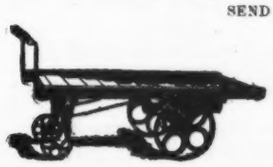

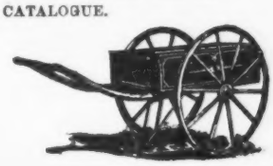

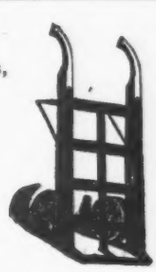

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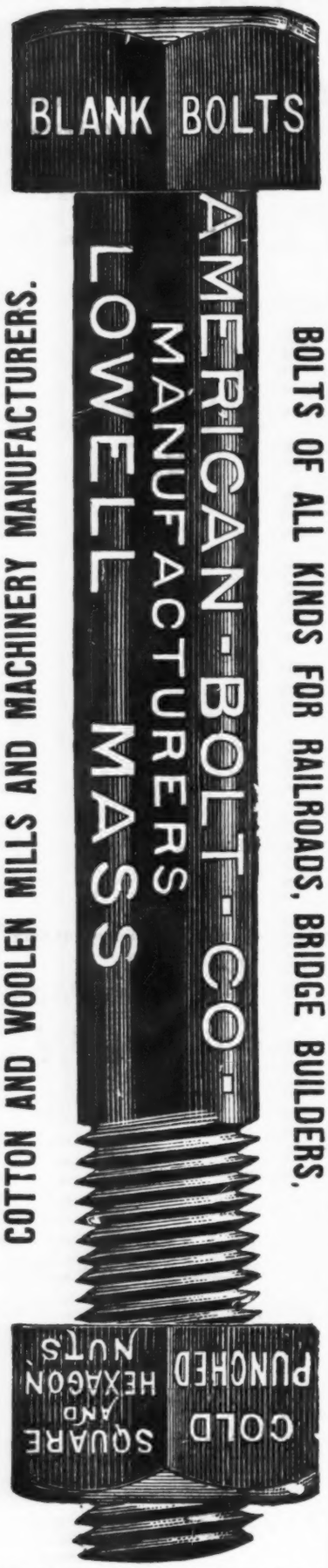

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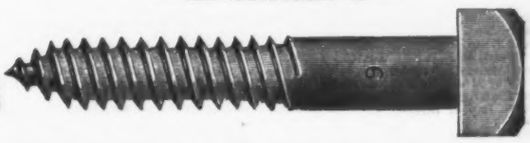

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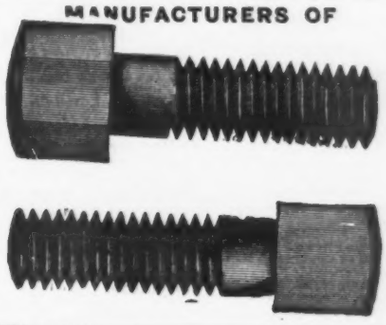

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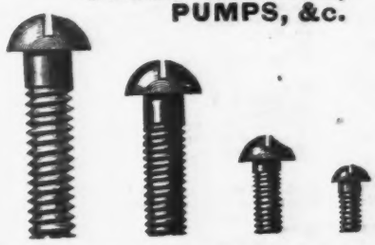

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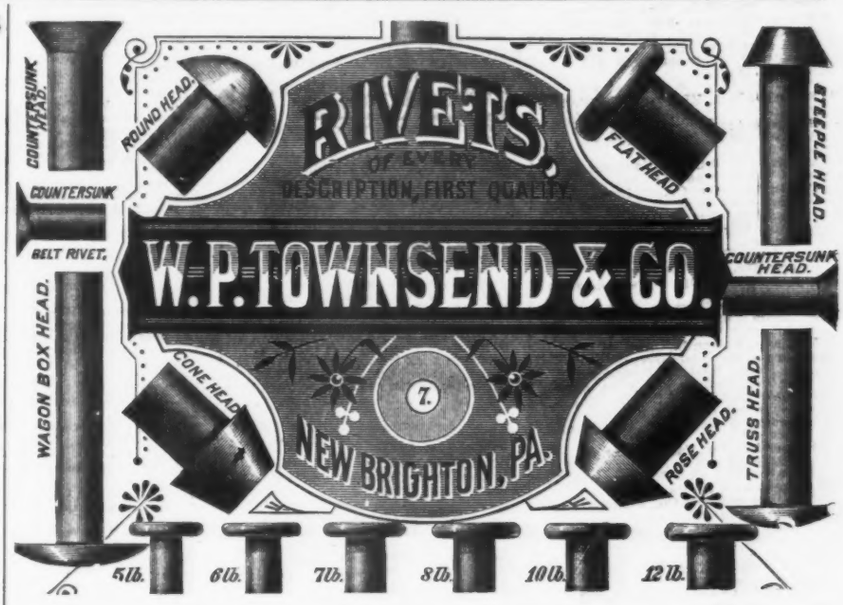

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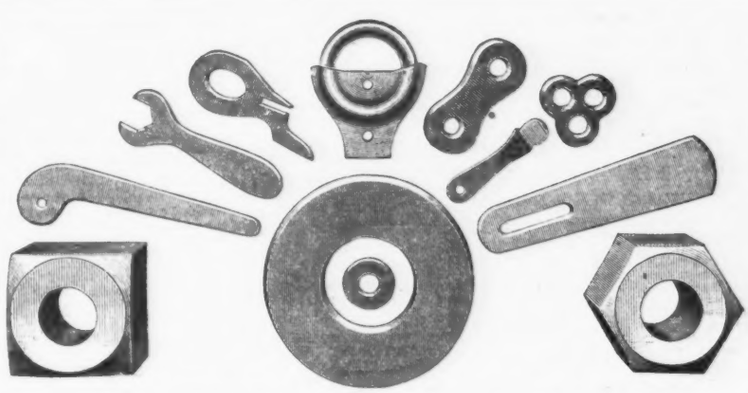

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Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Kohler, F. E. & Co., Canton, O.
Groves, H. B. & Co., Greenfield, Mass
Spring Curry Comb Co., So. Bend, Ind.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co. Chicago, Ill.
Curley, J. & Bro., 6 Warren St., N. Y.
Dame, Stoddard & Kendall, Boston, Mass.
Electric Cutlery Co., 91 Chambers, N.Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, I., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.
Union Hardware Co., Torrington, Ct.

Door Knobs.
Hardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Goddard, Ass. Worcester, Mass.
Halsey, Jas T., Philadelphia Pa.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa
Rhode Island Tool Co., Providence, R. I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., drooklyn, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Eaton, Geo. H. & Co., Boston, Mass.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury Conn
Wheeler Frank, Meriden, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Amer. Axe & Tool Co., 280 B'way, N.Y
Buck Bros., Millbury, Mass
Butcher, W. S., 155 Duane St., N. Y.
Plume, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Egg Poachers.
Sheparo, Sidney & Co, Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. H. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Detroit Dynamo Co., Detroit, Mich.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevator Gates.
Webster & Perks Tool Co., Springfield, O.

Elevators, *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass
Variety Mch. Co., Warsaw, N. Y.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Chicago, Ill.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Southern Emery Wheel Co., Talladega, Ga
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
De Forest, H. L., 145 Liberty St., N. Y.
Gram Curtis, Pittsburgh, Pa.
Herrick, J. A., 15 Whitehall St., N. Y.
Kennedy, Julian, Pittsburgh Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lea, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co. Incorporated Pittsburgh, Pa.
Stein & Schwars, Philadelphia, Pa.
Swindell W. & Bros Pittsburgh, Pa.
Tallman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

(See Alphabetical Index, Page 160.)

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
Ball Engine Co., Erie, Pa.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works, Harrisburg, Pa.
Lane & Bodley Co., Cincinnati, O.
N. Y. Safety Steam Power Co., N. Y.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn
Church, Isaac, Toledo, O.

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.

Fencing, Iron and Wire.
Barnum, E. T. Detroit, Mich
Central Expanded Metal Co., Pittsburgh
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I
Western File Co. Ltd., Beaver Falls, Pa

Filing Cabinets.
Globe Co., Cincinnati, O.

Fire Brick. *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Newton & Co., Albany, N. Y
Renovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Pope, C. E. & Co., Pittsburgh, Pa.
Stowe, Fuller & Co., Cleveland, O.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Brown & Patterson, Brooklyn, N. Y
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Parson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collian, Victor, Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Parson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass

Garden Tools.
Noyes, H. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp, Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
James, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. . & Co., Gloucester, Mass.
Improved Process Glue Co., Gloucester Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
F. & N. Mfg. Co., Richmond, Ind.
Gennon & Krause, Chicago, Ill.

Graters and Slicers.
Cook, Burton H., Brooklyn N. Y.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gun Implements.
Union Hdw. Co., Torrington, Conn.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hand Screws.
Grand Rapids Hand Screw Co., Grand Rapids, Mich

Hangers, Door.
Cobb Trolley Track Mfg Co, Holyoke, Mass.
Cronk Hanger Co., Elmira, N. Y.
Graham, Jno. H. & Co., 113 Chambers St., New York.
Lane Bros., Poughkeepsie, N. Y.
Munger-Colton Mfg. Co., Chicago, Ill.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Graham, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surpass, Dunn & Alder, 97 Chambers St., New York.
Unoerhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Cleveland Fdy. Co., Cleveland, O.
Cronk Hanger Co., Elmira, N. Y.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Penn, A. S. & Co., New Haven, Conn
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hog Rings and Ringers.
Blair, L., Bucyrus, Ohio.
Oakes & Irwin, Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty, St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co., Sidney, O

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Reels
Wirt & Knox Mfg. Co., Independence, Mo.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St., N. Y
Packer, C. W., Philadelphia, Pa.
Shepard Hdw. Co. Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York
Sherwood Mfg. Co., Buffalo, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. H. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Ettung, Edw. J., Philadelphia.
Hart, Wm. R. & Co., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Kesley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Walbaum, W. H. & Co., Philadelphia.
Wilhelm & Richards, Harrisburg, Pa.
Williams, Nelson B., Chicago, Ill.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cuniffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 416 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 80 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Naylor & Co., 45 Wall St., N. Y.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Central Expanded Metal Co., Pittsburgh
Clinton Wire Cloth Co., St. Louis, Mo.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Graham, Emlen & Passmore, Phila, Pa
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Globe Mfg. Co., Canton, O.
Oneida Lawn Rake Co., Oneida, N. Y.

Lawn Sprinklers.
Etue & Benger Mfg. Co, St. Louis, Mo.
Kupferle, John C., St. Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath l. mass.

Locks & Latches, *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Canton Combina ion Lock Co., Canton, Ohio.
Clafin Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw Co, Reading, Pa.
Romer & Co., Newark, N. J.
Russell & Erwin Mfg. Co., N. Y. City
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Selbert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bertsch & Co., Cambridge City, Ind.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H., Lockport N. H.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin & Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., 44 & 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn
Crankshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E. Son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Henley Mch. Tool Works, Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Mackinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y
Manville, E. J. Mch. Co, Waterbury Conn.
National Machinery Co., Tiffin, Ohio
Newark Mch. Tool Works, 39 Park, N. J
New Haven Mfg. Co., New Haven, Conn
New York Machy Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pitkin, A. B. Machy. Co., Providence,
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Falls.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Webster & Perks Tool Co., Greenfield, O.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machinists' Scales.
Coffin & Leignton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, A. B., St. Louis, Mo.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Branford, Conn.
Bond & Goodell & Co., Chicago.
Norfolk & Western R. R.
N. Y., L. E. & W. R. R.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Meat Presses.
Osborne, H. F., Newark, N. J.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Machinery.
Gates Iron Wks., Chicago, Ill.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Parson, J. W. & Co., Phila
Motors, Water and Electric.
Belknap Motor Co., Portland, Me.
Thomson-Houston Motor Co., Boston, Mass.

Muzzles.
Cincinnati Mfg. Co., Cincinnati, Ohio.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nail Pullers.
Peckham, F. C., Newark, N. J.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 61 Washington, N. Y.
Pope, C. E. & Co., Pittsburgh, Pa.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 198 Reade, N. Y.
Williams, Nelson B., Chicago, Ill.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies
Detroit Dynamo Co., Detroit, Mich.
Hanson & Van Winkle Co., Newark N. J.
Zucker & Levett Chemical Co., 527 to 534 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c. *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Nutmeg Grater.
Edgar Mfg. Co., Reading, Mass.

Oil Cups and Lubricators.
Sherwood Mfg. Co., Buffalo, N. Y.

Oilers.
Hammer & Co., Branford, Conn
Williams, H. A. Mfg Co., Boston, Mass

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

(See Alphabetical Index, Page 160.)

Selbert Cylinder Oil Cup o., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Philadelphia, Pa.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W., & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Philadelphia, Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hilebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Peanut Roasters and Warmers.
Manhattan, R. J. 80 Vesey St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Hall & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Hart, Wm. R. & Co., Philadelphia.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Spiral Weld Tube Co., 45 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Columbus Mfg. Co., Columbus, O.
Gibbs Mfg. Co., Canton, O.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Ladin & Rand Powder Co., 29 Murray

Power Hammers.
Beandry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Long & Allstatter Co., Hamilton, Ohio.
Jenkins & Tingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.
Wheeler, Frank Meriden, Conn

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pruning Shears.
Henry, Jno. T. & Son, Hamden, Conn.

Pulley Fixings.
Foley, J. W. & Co., Cincinnati, O.

Pulleys.
Reeves Pulley Co., Columbus, O.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. H. & Co., Cincinnati, O
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps. *Makers of.*
Deming Co., Salem, O.
Douglas, W. & R., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd. Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y
Stiles & Parker Press Co., Middletown, Conn.
Wais & Roos Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Brimell, Schmidt & Co., Ltd., York, Pa.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Cutley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristol's Mfg. Co., Waterbury, Conn.

Refrigerators.
Kankakee Mfg. Co., Kankakee, Ill.
Northern Refrigerator Co., Grand Rapids, Mich.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno & Sons, New Haven, Conn.

Rock Breakers.
Gates Iron Works Chicago, Ill.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
McLanahan & Stone, Hollidaysburg Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O
Johns H. W. Mfg Co 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grips.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Ferris, W. M., St. Louis, Mo.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co. 97 Chambers, N.Y.
Simonds Mfg Co, Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros. Testing Mch. Co., Philadelphia.

Screens, Door and Window.
Phillips, A. J. & Co., Fenton, Mich.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago Ill.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Grilley Co., New Haven, Ct.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia. Pa
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Boonton Iron & Steel Co., Boonton N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport.
Cambridge Iron & Steel Co., Cambridge Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St., N. Y.
Pope, C. E. & Bro., Pittsburgh, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Union Hardware Co., Torrington, Conn
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henley, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Spring Door Checks.
Sargent & Co., 37 Chambers St., N. Y.

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 104 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass
Ward, T. C., Auburn, N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N.Y.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 92 Beekman, N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y

Squares.
Hatch & Holmes Mfg. Co, Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co., Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster, Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Morhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw. & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Davenport, Iowa.
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Stops.
Electric Cutlery Co., 91 Chambers, N.Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.
Tack Hammers.
Richar son, J. C. & Co., Ridgway, Pa.
Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Green wich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. R., Whitman, Mass.
Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Testing Machines.
Riehle Bros. Testing Mch. Co., Philadelphia.
Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.
Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.
Fire Cement.
Am. Trading Co., 182 Front, st., N. Y.
Toe Calks, Steel.
Burke, P. F., Boston, Mass.
Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Cincinnati Tool Co., Cincinnati, O.
Fray, Jno. S. & Co., Bridgeport, Conn
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.
Tower & Lyon, 95 Chambers St., N. Y.
Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.
Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.
Torches, Oil and Gasoline.
Dangler Stove & Mfg. Co Cleveland, O.
Standard Lighting Co., Cleveland, O
Transom Lifters.
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Trash Picker.
Fulton, J. Lawrence, Cleveland, O.
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Pa. Mfg. Co., Elyria, O.
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Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich
Tube Scrapers.
Johns, H. W. Mfg. Co., 87 Maiden Lane

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
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Shelby Steel Tube Co., Shelby, O.
Central Iron & Steel Co. Brazil, Ind.
Graham Twist Drill & Chuck Co., Detroit, Mich.
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Tumbling Barrels.
Henderson Bros., Waterbury, Conn.
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Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.
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Ashton Valve Co., Boston, Mass.
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Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
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Covert, E. Mfg. Co., Farmer Village, N.Y.
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Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H & Son, Reading, Pa.
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Diether & Barrows, Ft. Wayne, Ind.
Wayne, Anthony Mfg. Co., Ft. Wayne Ind.
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Am. Fluoride Co., 261 Liberty, N. Y.
Brad ley & Co., Syracuse, N. Y.
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Oil Well supply Co., Pittsburgh, Pa.
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Arnold Metal Wheel Co., New London, Ohio.
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Akron Tool Co., Akron, O.
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American Whip Co., Westfield, Mass.
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American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
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Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Mill r & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn
Prentiss, Geo. W. & Co., Holyoke, Mass
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Trenton Iron Co., Trenton, N. J.
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Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wire Cloth.
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Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
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Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
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Wright & Colton Wire Cloth Co., Worcester, Mass.
Wire Cloth Holders.
Hosford, John, Monroeville, O.
Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. H. & Co., Watertown, N. Y.
Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.
Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.
Wire Fences.—*See Fencing, Iron and Wire*
Wire Fence Stretchers.
Wire Fence Supply Co., Indianapolis, Ind.
Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn
Cincinnati Mfg. Co., Cincinnati, Ohio
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo
Gilbert & Bennett Mfg. Co., N. Y.
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Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.
Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.
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Wire Nails.
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Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill,
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
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Wire Rods, Steel.
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Illinois Steel Co., Chicago, Ill.
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Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.
Wire, Spool.
Malin & Co., Cleveland, O.
Wood Mantels.
Ironton Wood Mantel Co., Ironton, O.
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Egan Co., Cincinnati, O.
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Seneca Falls Mfg. Co., Seneca Falls, N. Y.
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Amer. Roll Paper Co. St. Louis, Mo.
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Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn
Capitol Mfg. Co., Chicago, Ills.
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Rhode Island Tool Co., Providence, RI.
Tower & Lyon, 95 Chambers St. N. Y.
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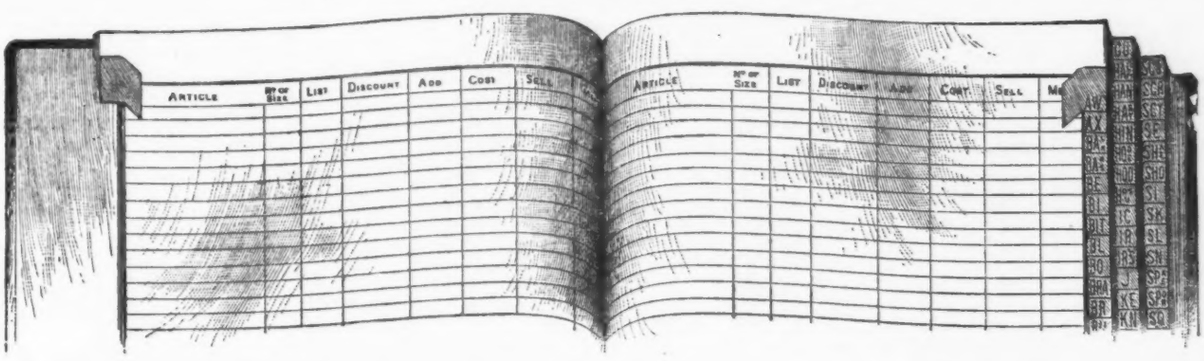

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SUPPLEMENT.—A 40-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

This book is issued in only one edition, **price $5.00.**

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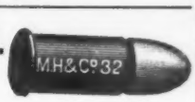

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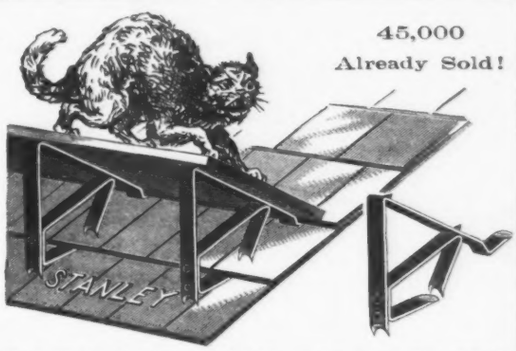

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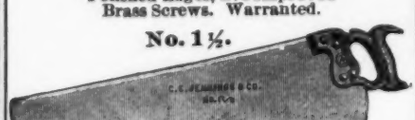
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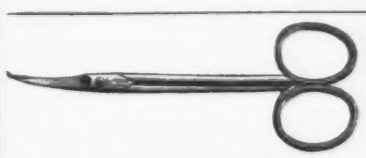

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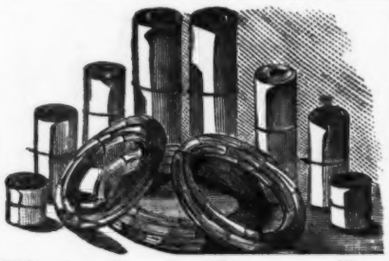
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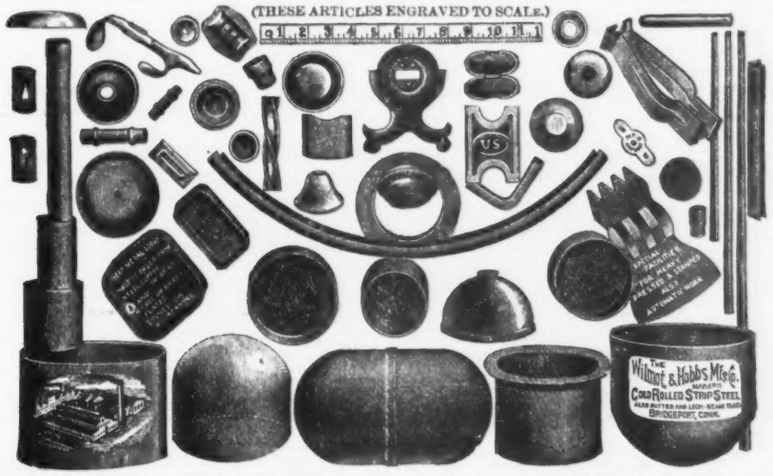

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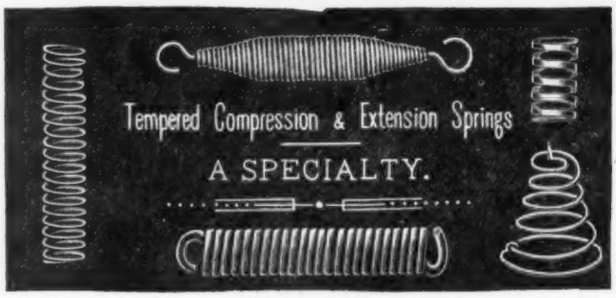

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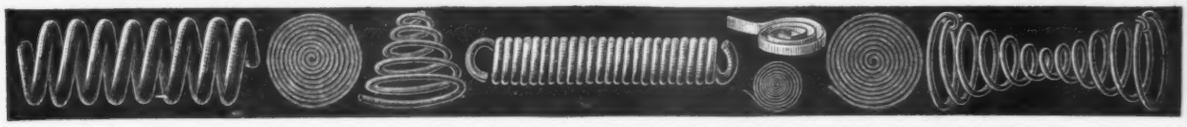

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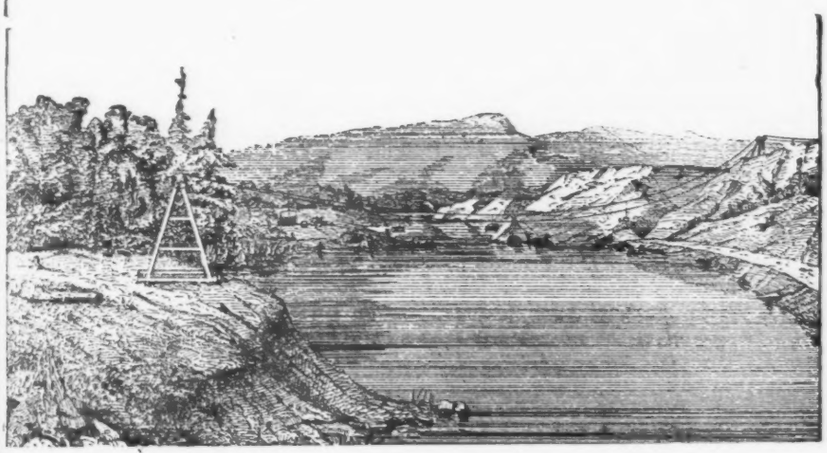

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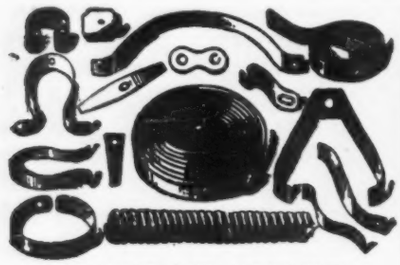

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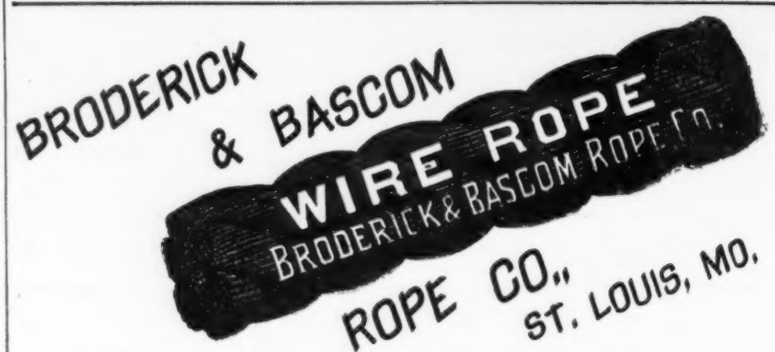

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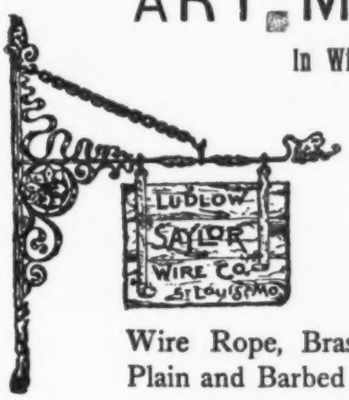

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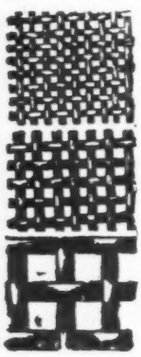

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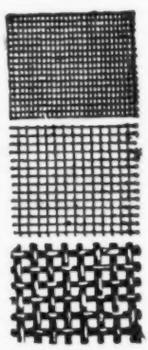

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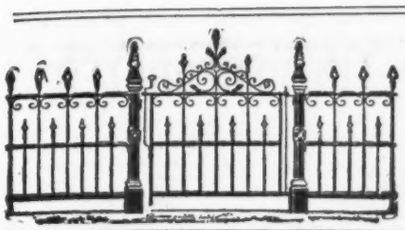

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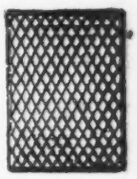

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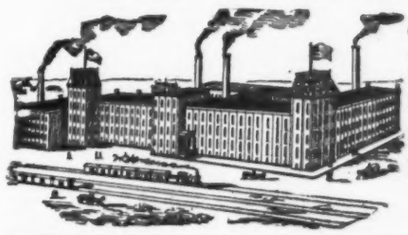

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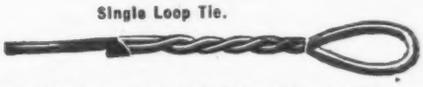

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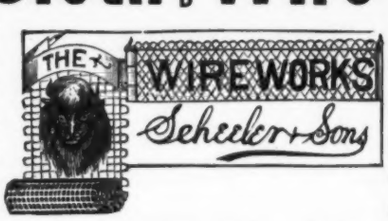

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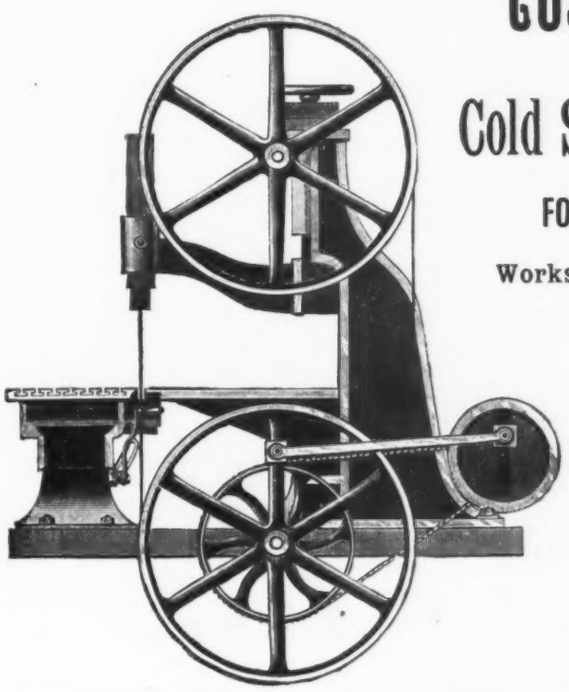

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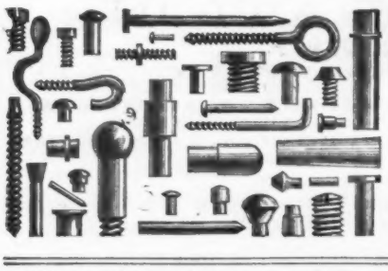

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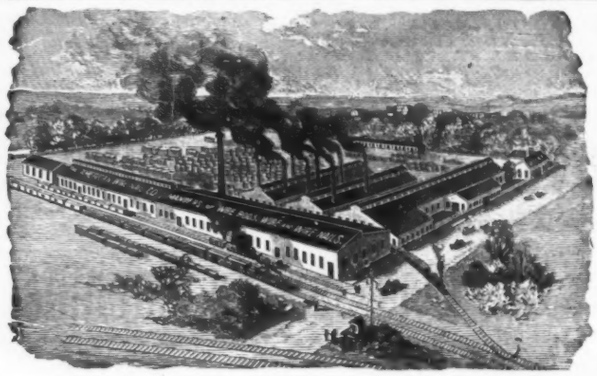

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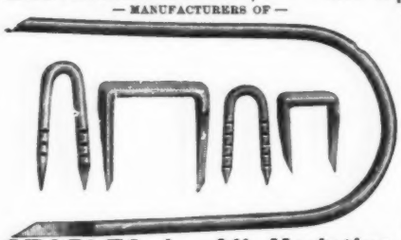

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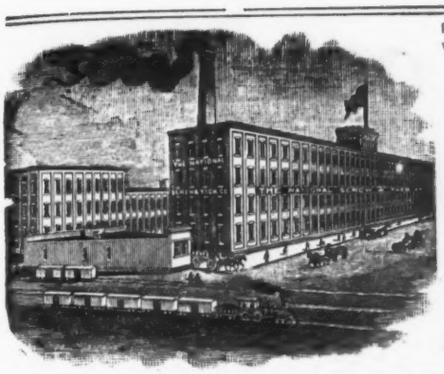

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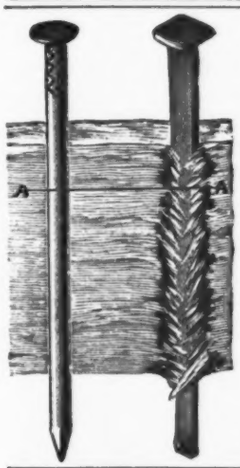

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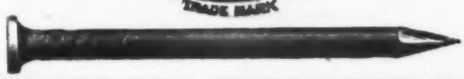

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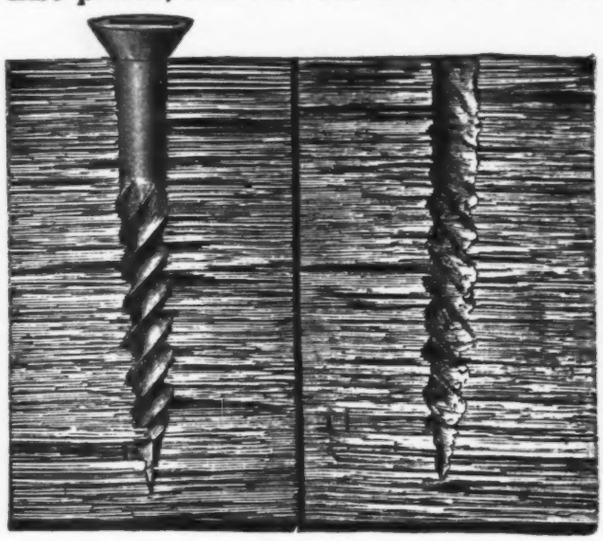

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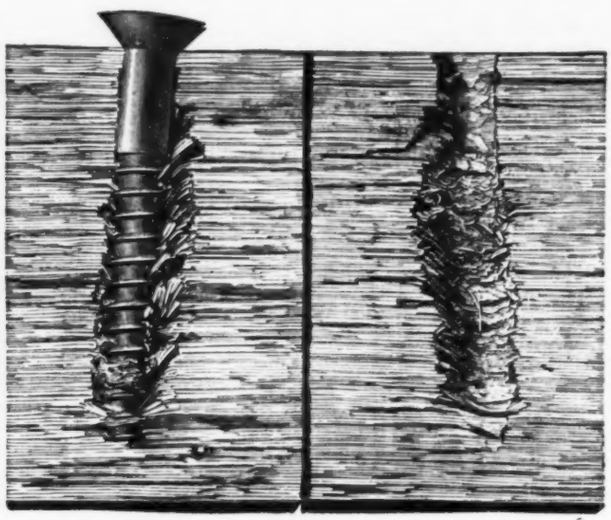

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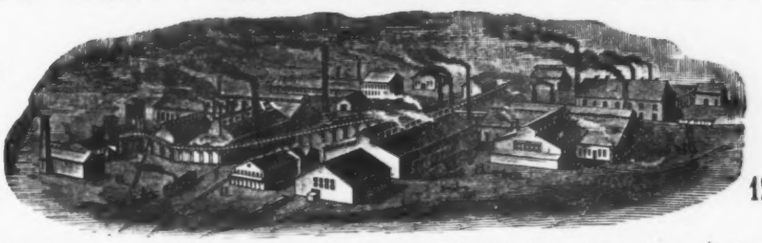

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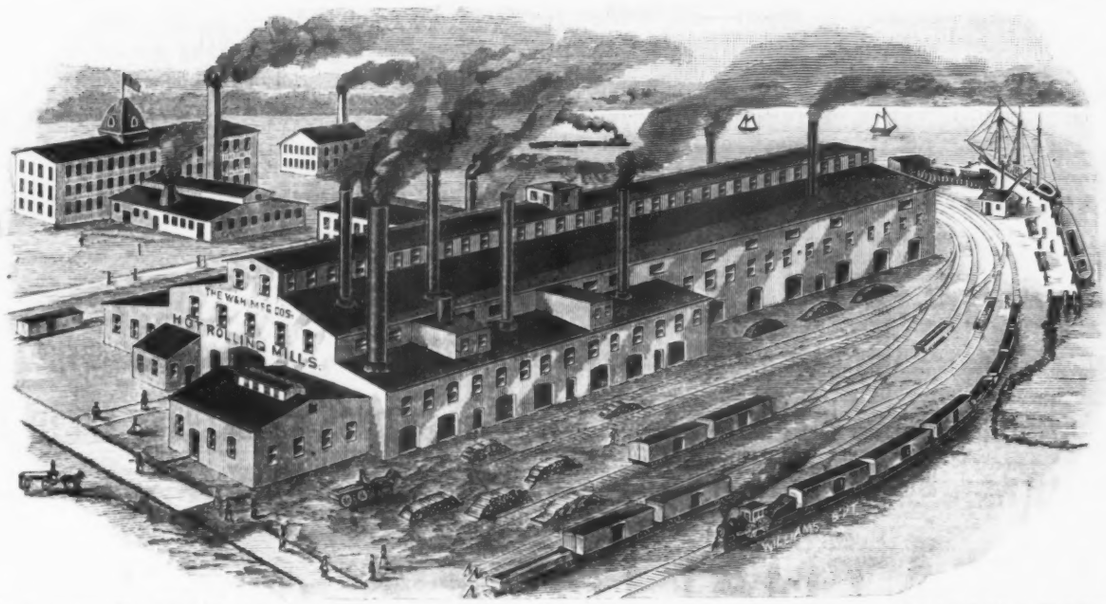

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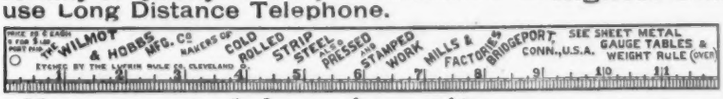

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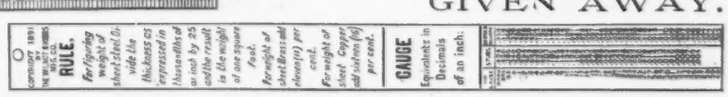

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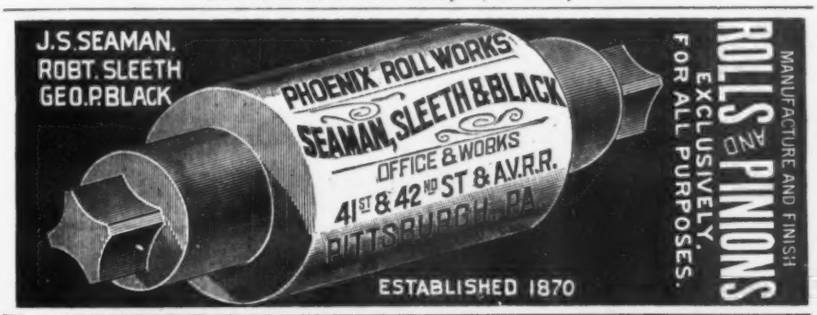

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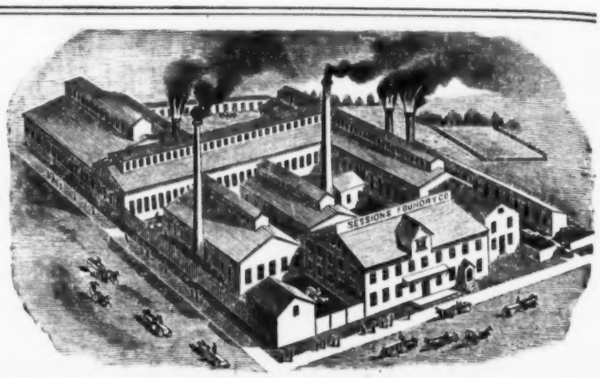

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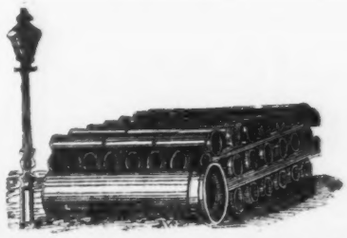

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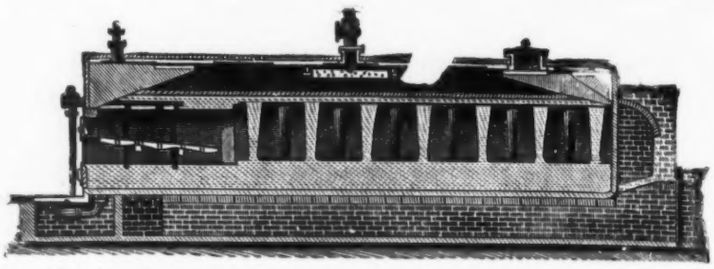

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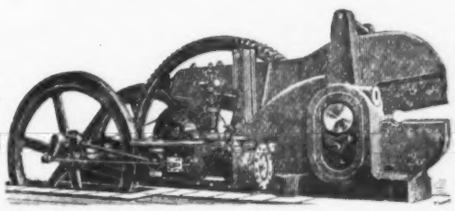

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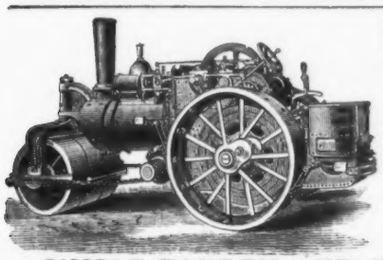

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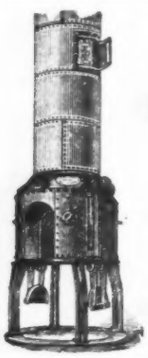

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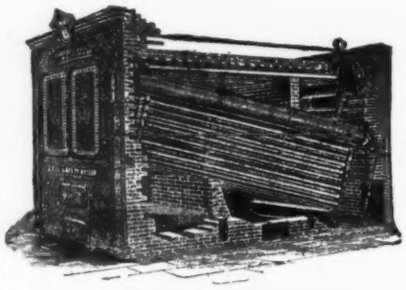

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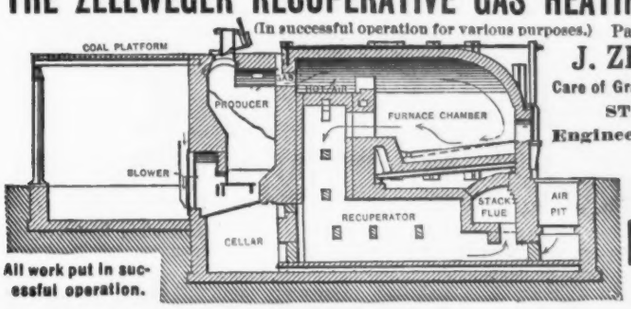

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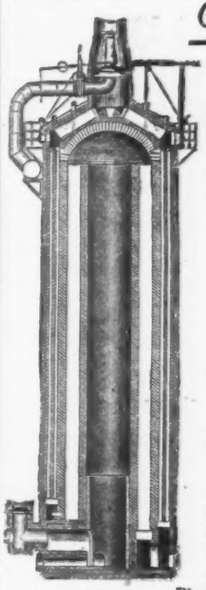

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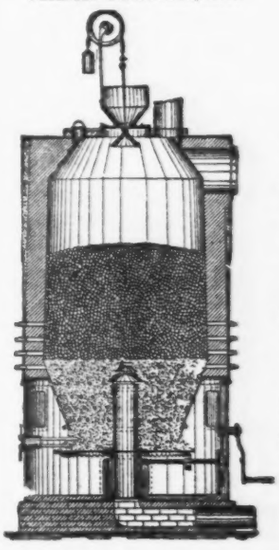

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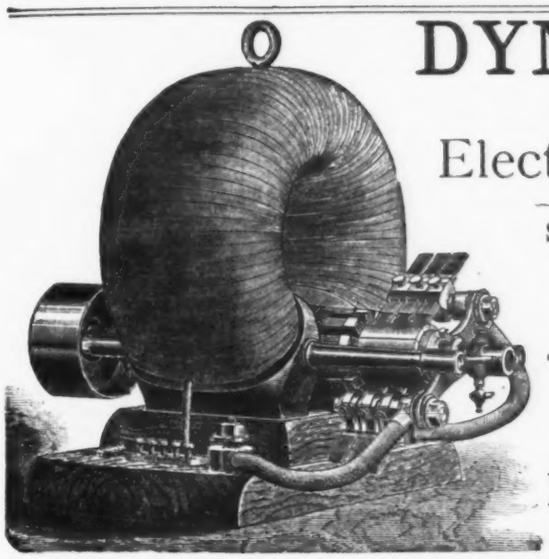

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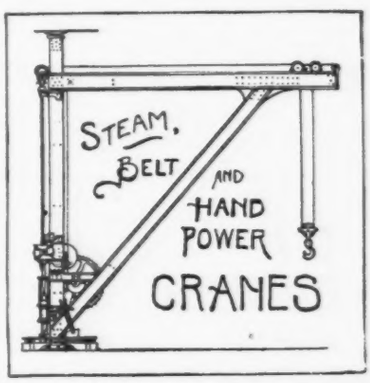

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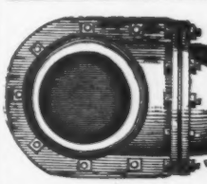

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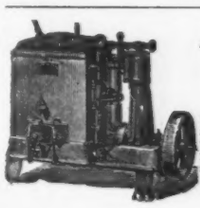

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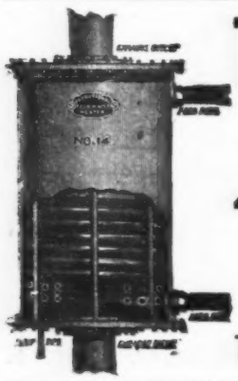

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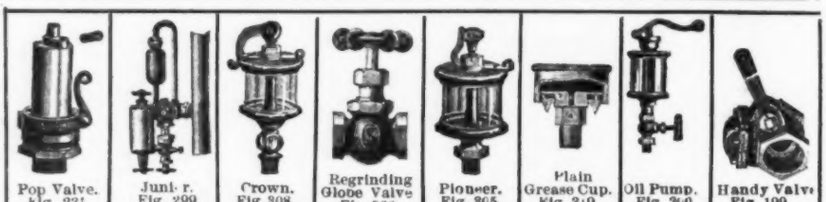

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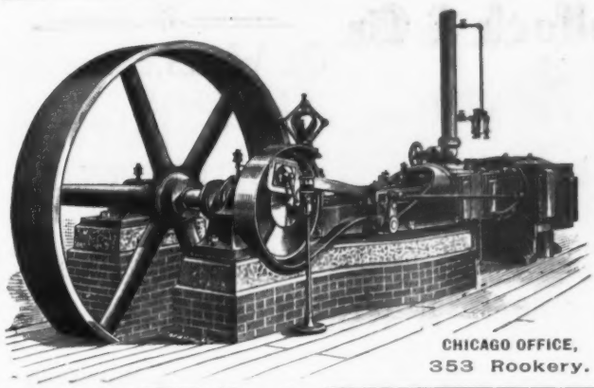

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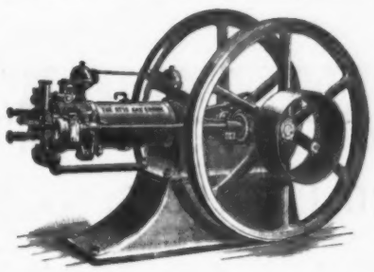

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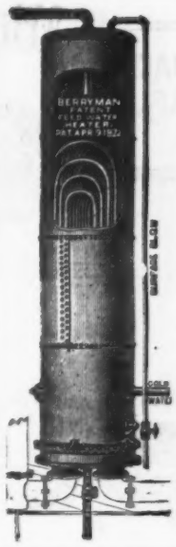

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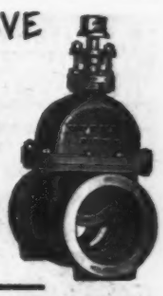

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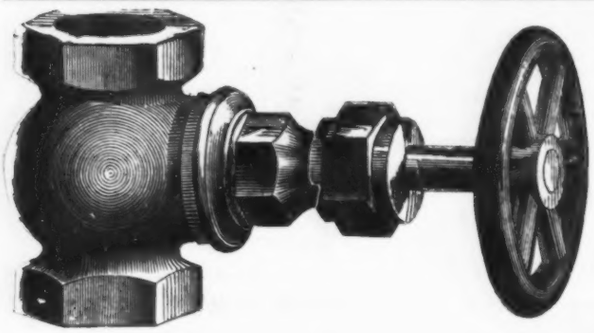

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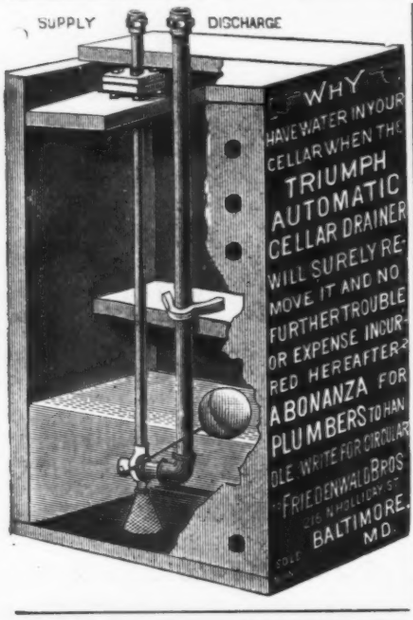

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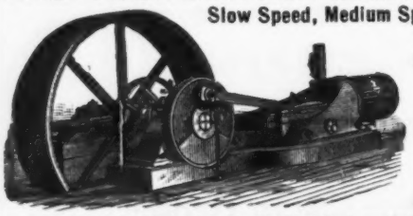

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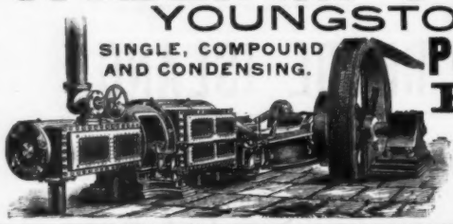

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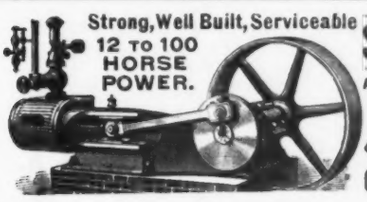

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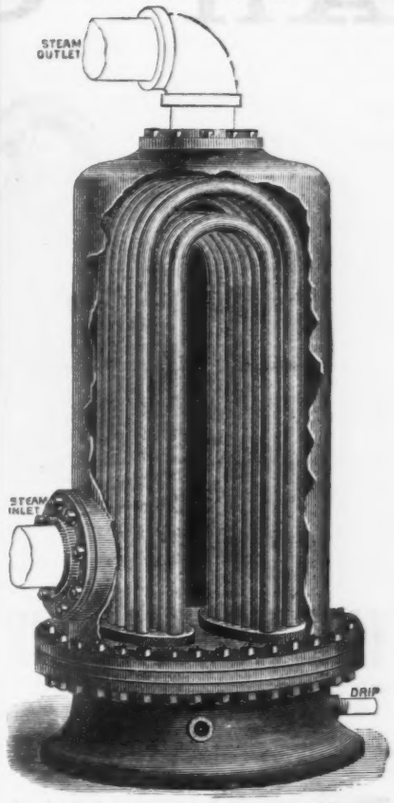

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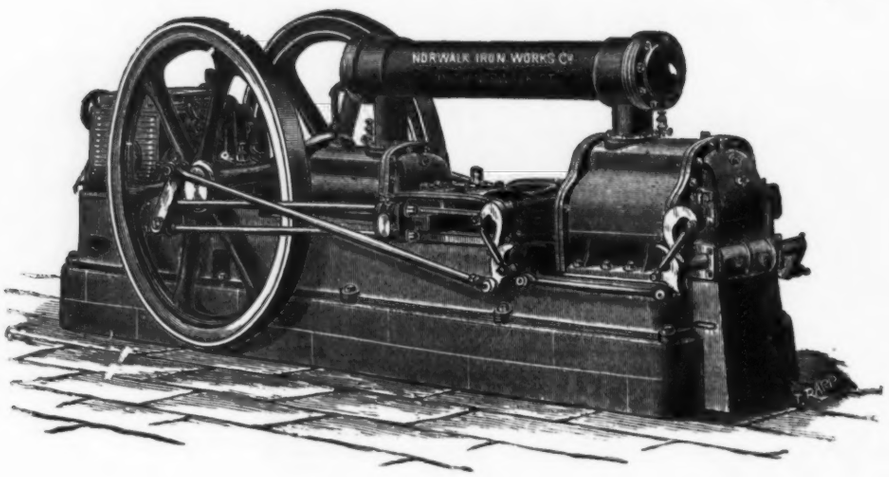

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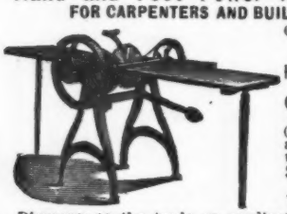

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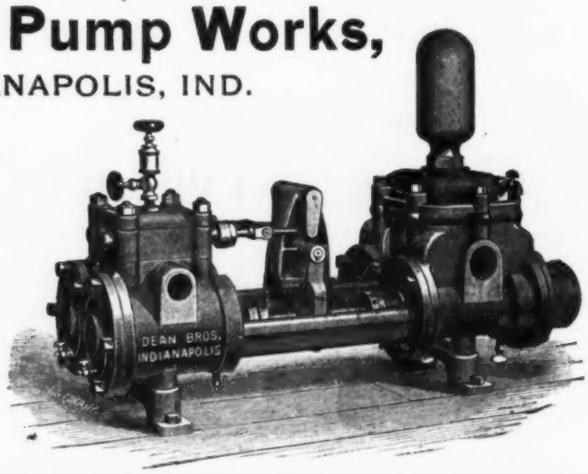

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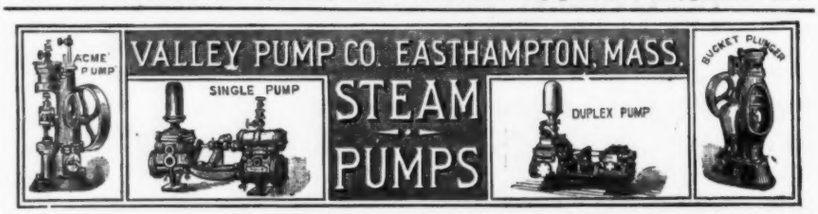

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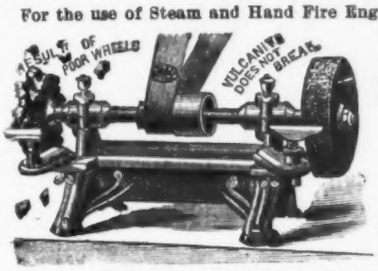

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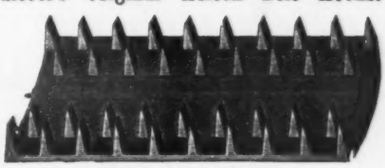

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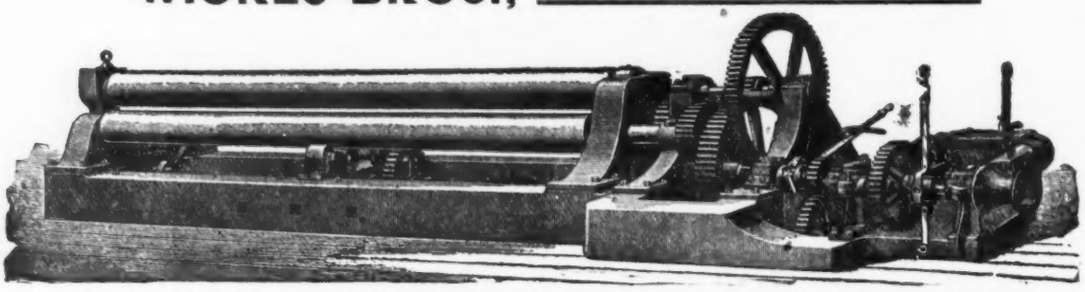

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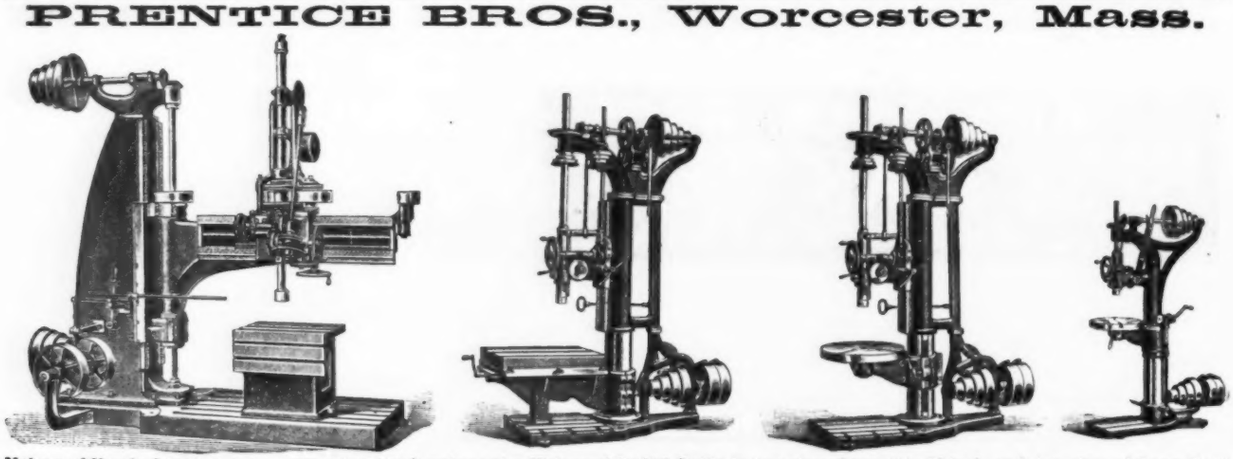

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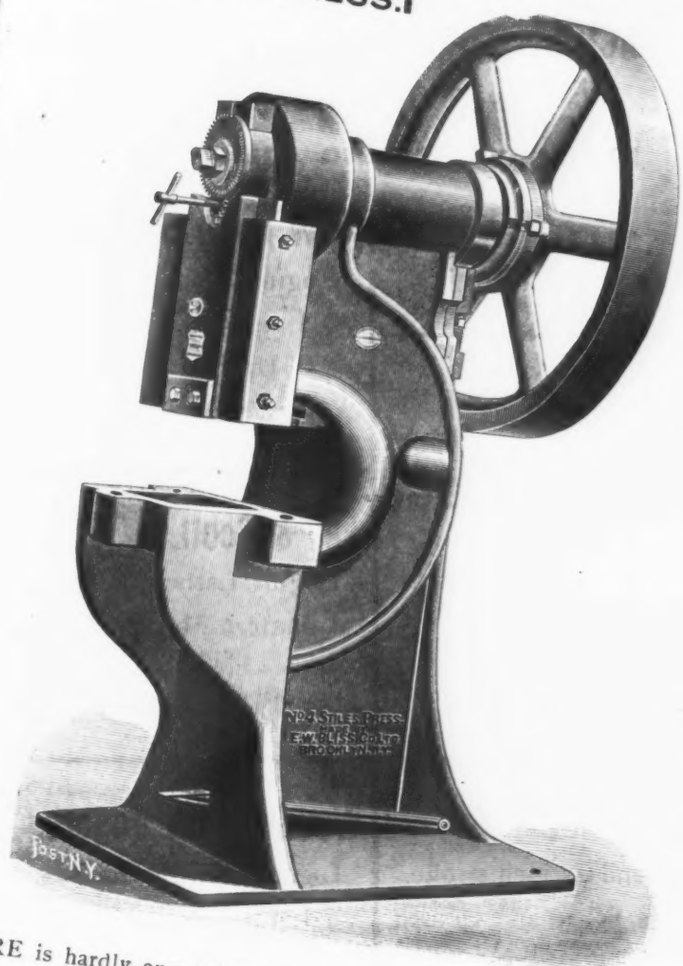

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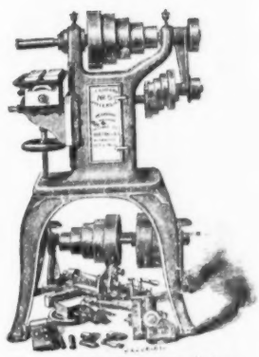
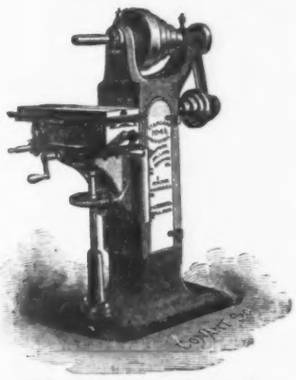
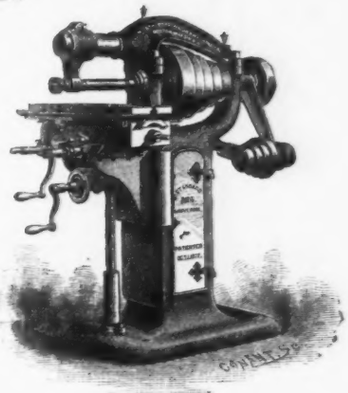


No. 5 Milling Machine.



No. 4½ Milling Machine.



No. 4 Milling Machine.

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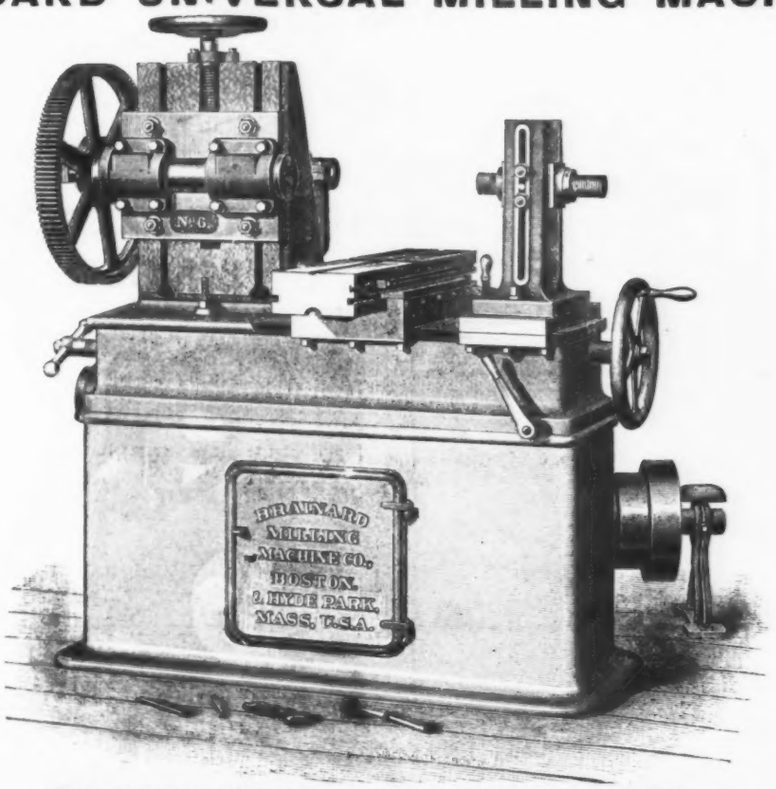

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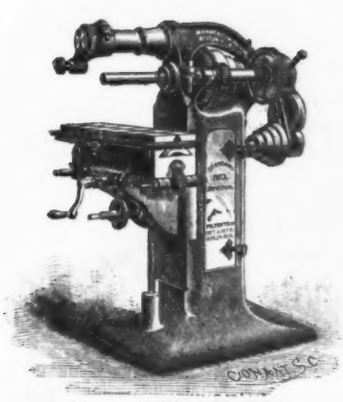
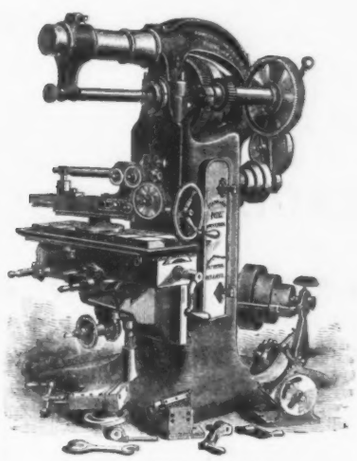
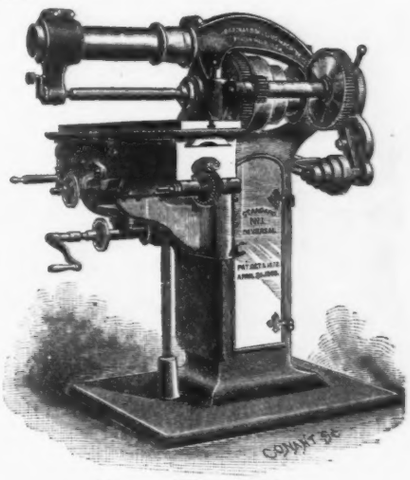


No. 3 Milling Machine.



No. 2 Milling Machine.



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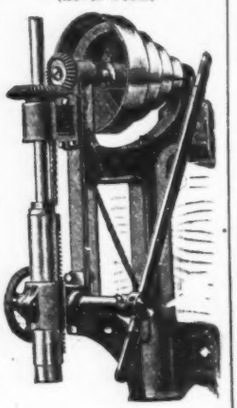

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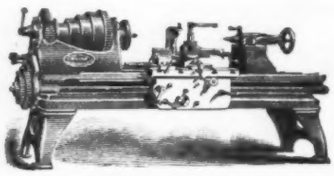

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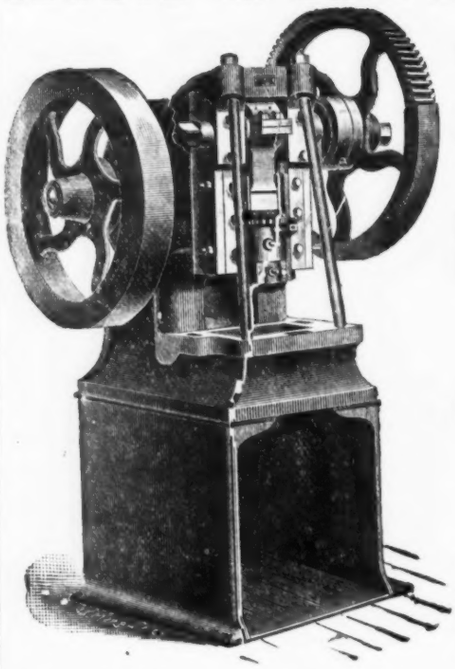

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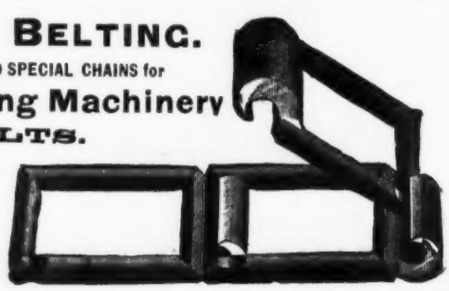

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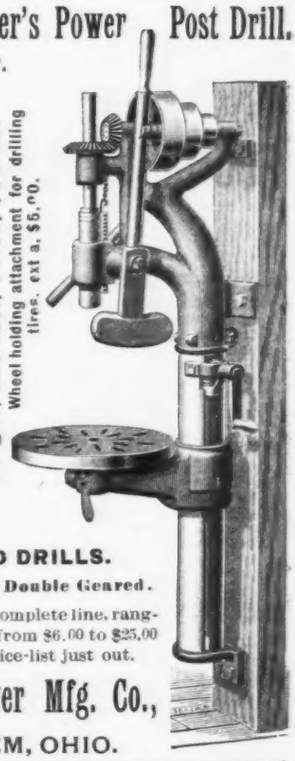

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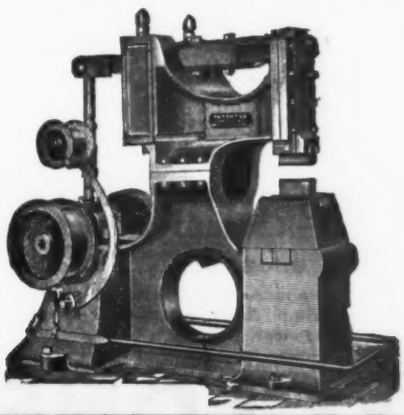

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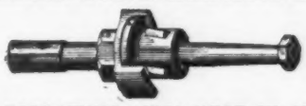

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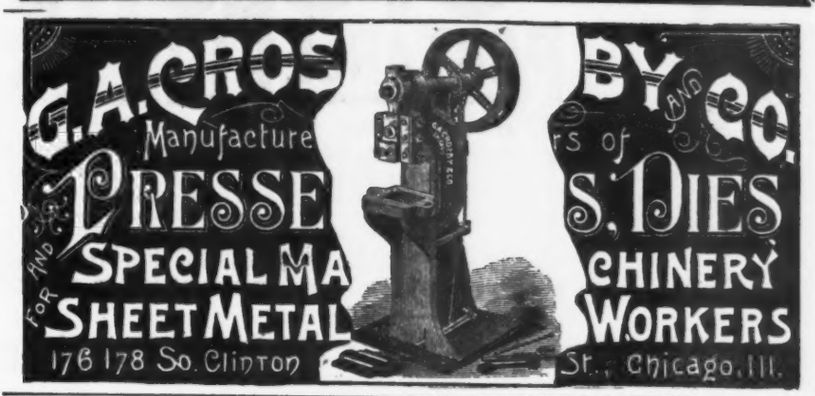

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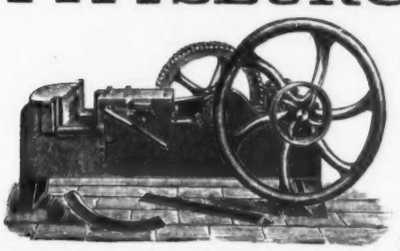

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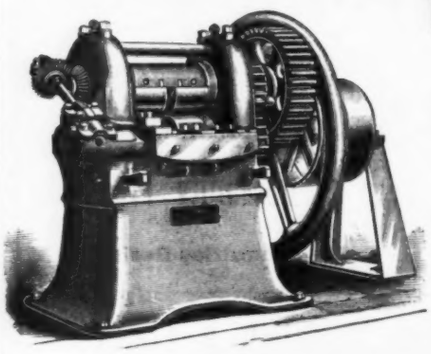

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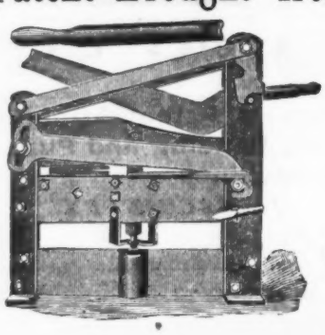

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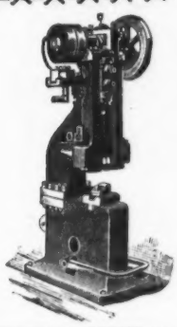

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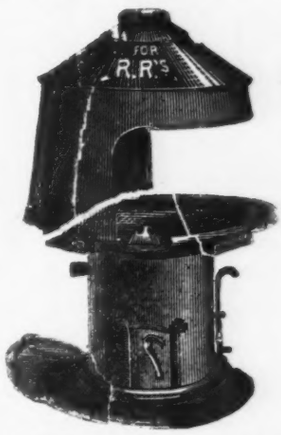

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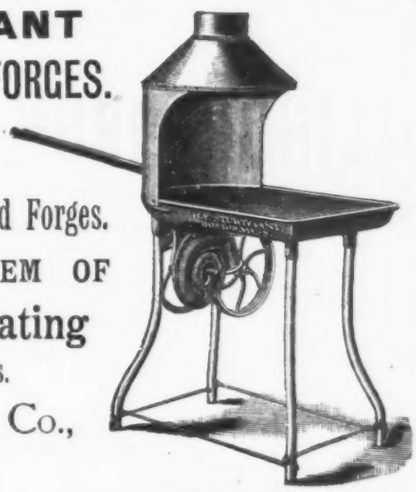

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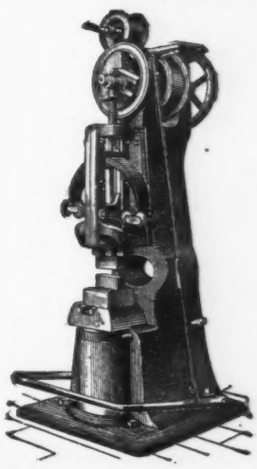

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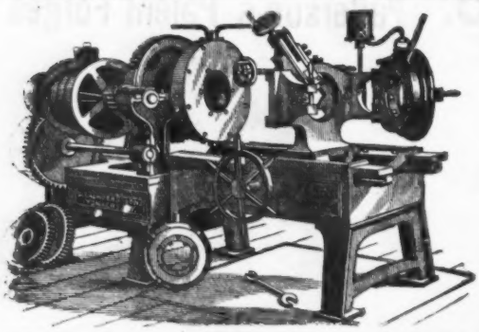

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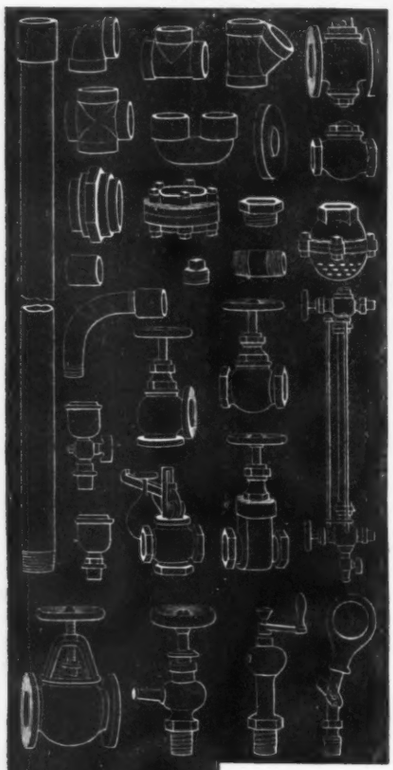

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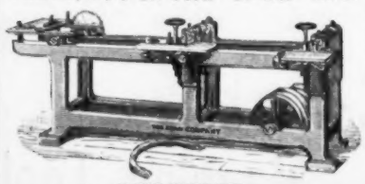

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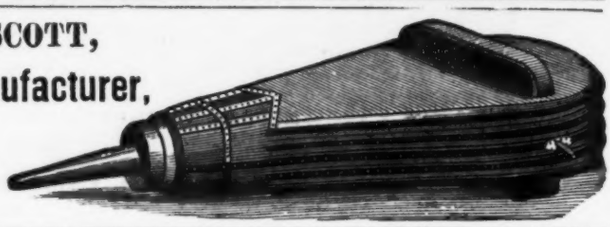

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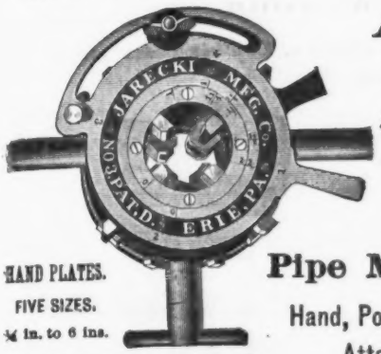

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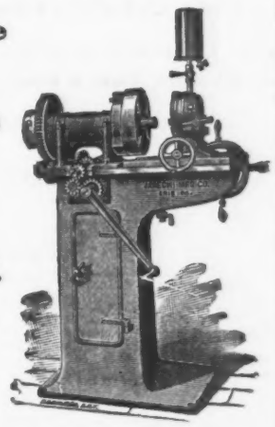

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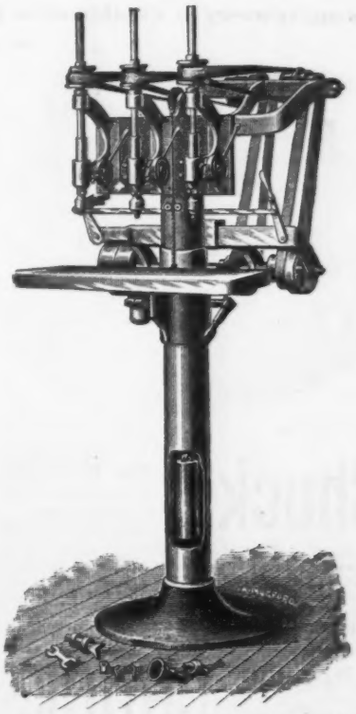

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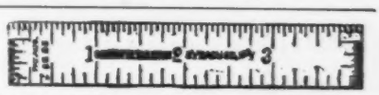

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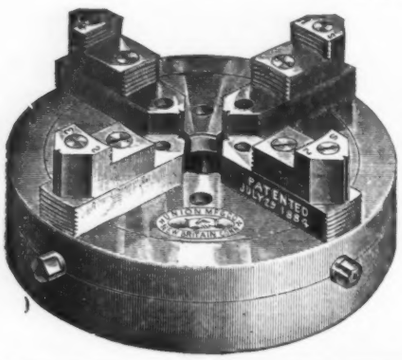

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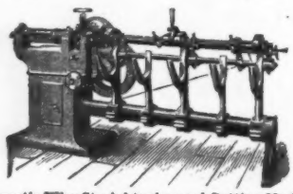

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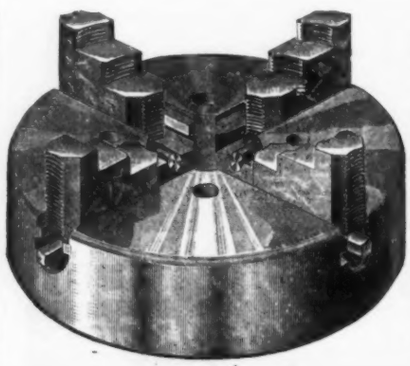

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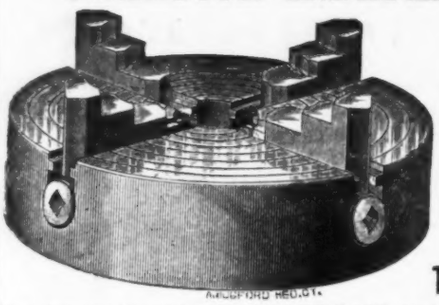

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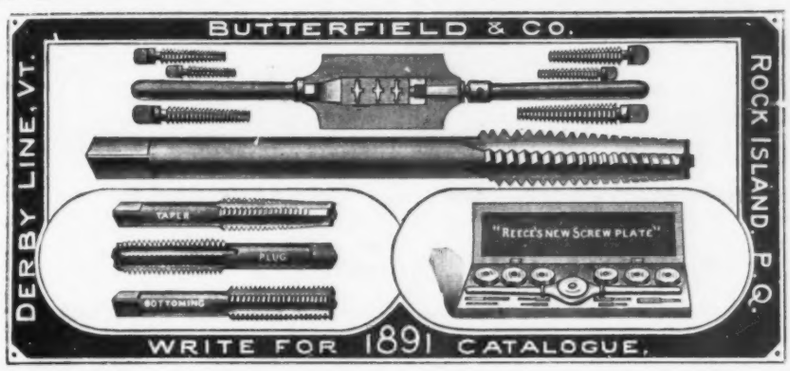

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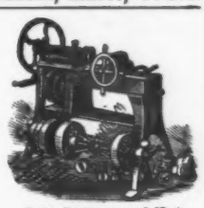

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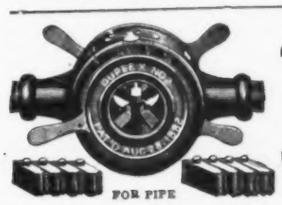

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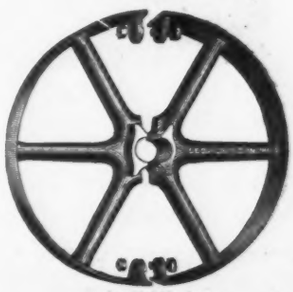

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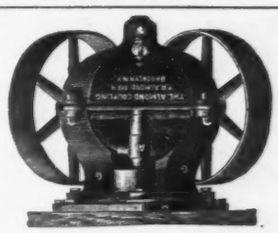

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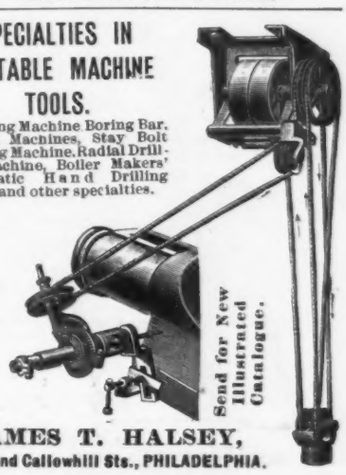

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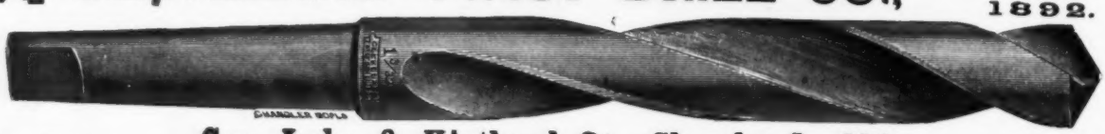

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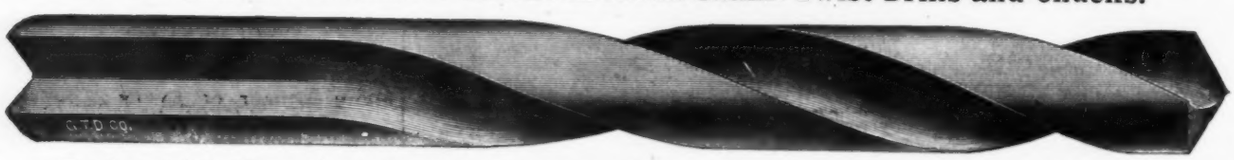

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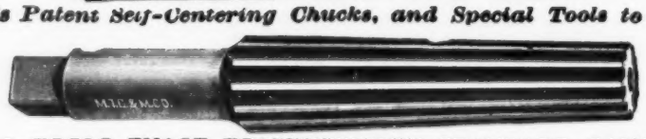

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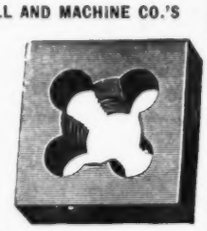

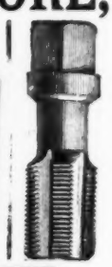

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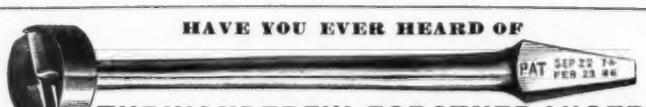

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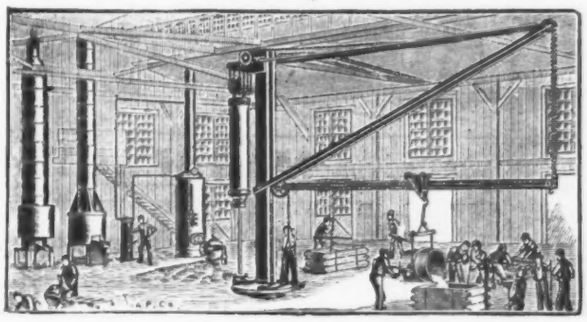

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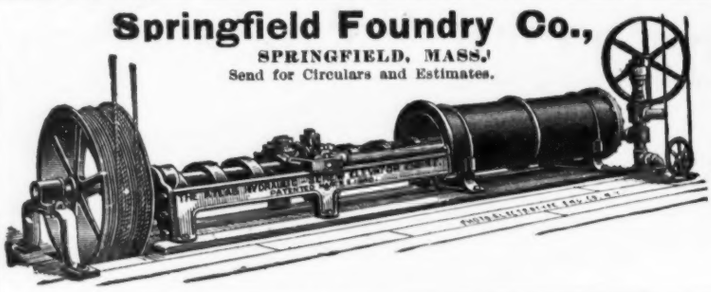

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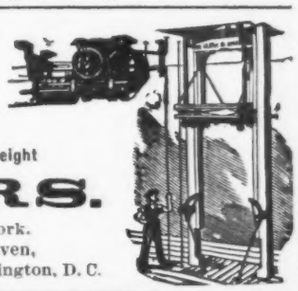

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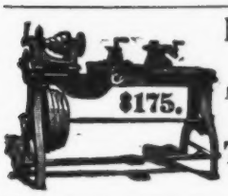

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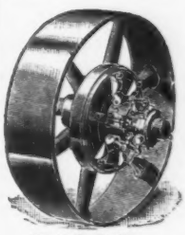

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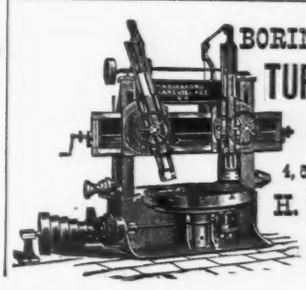

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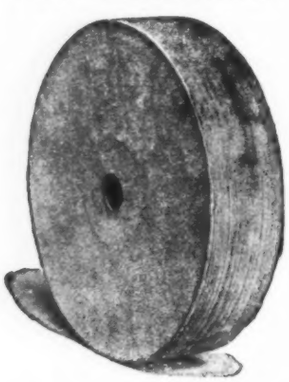

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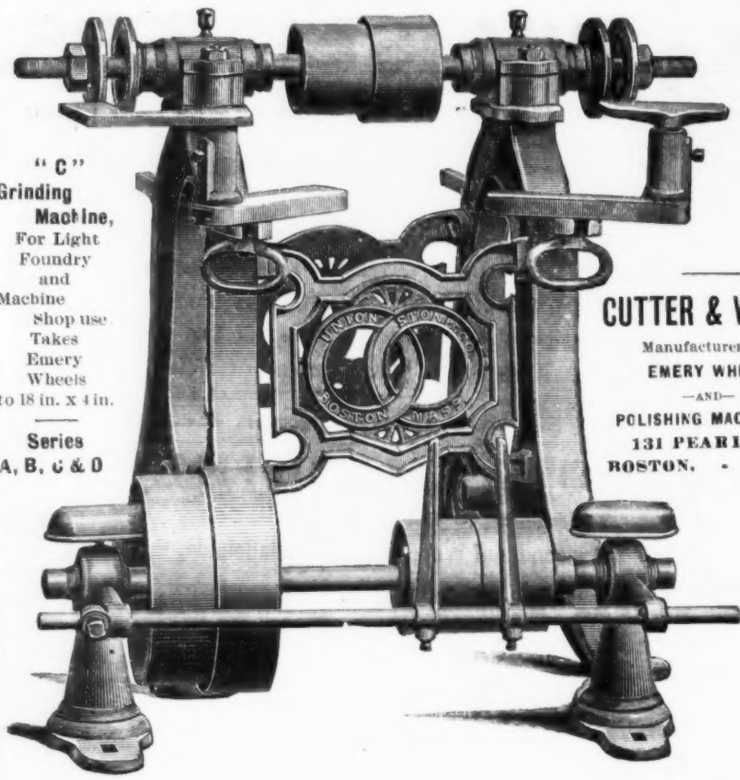

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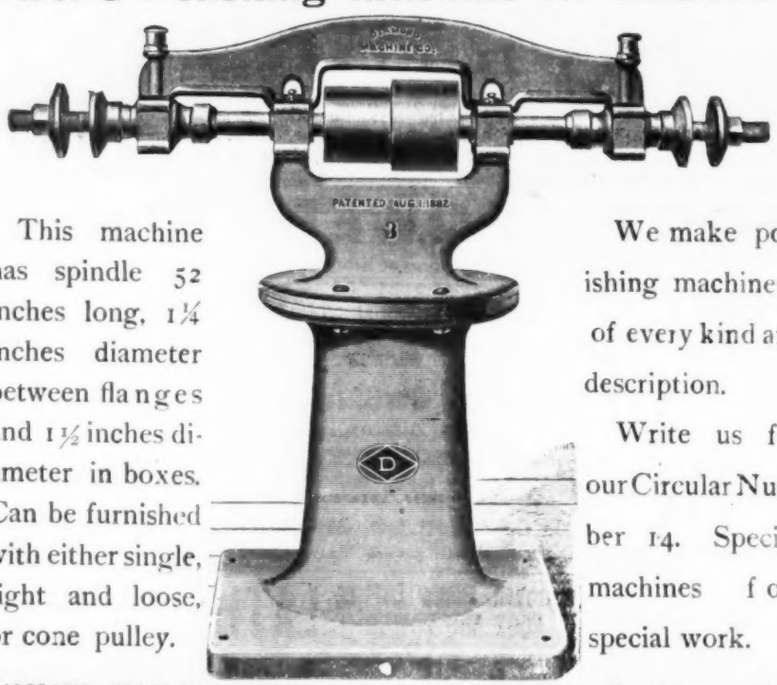

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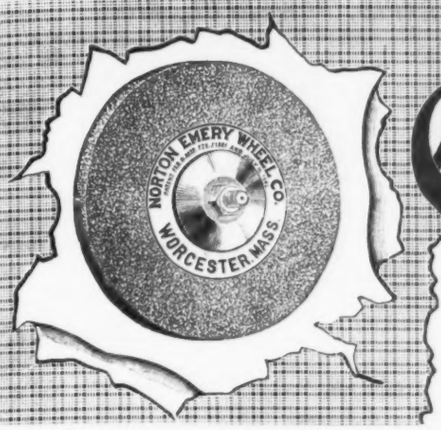

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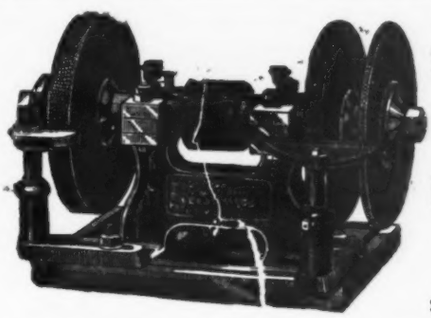

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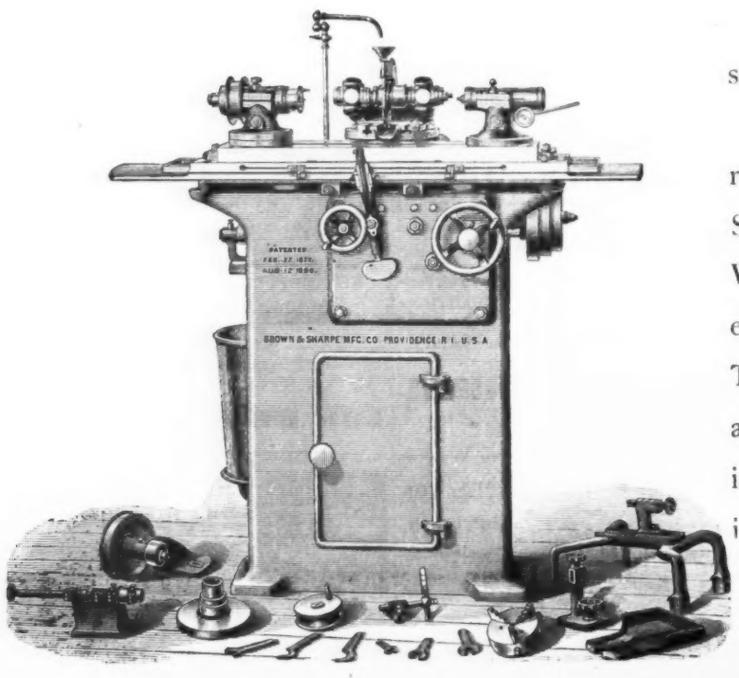

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A MACHINE SHOP

OF

Second-Hand Tools

For Sale SINGLY.

MOSTLY FITCHBURG TOOLS.

ADDRESS

Pennsylvania Machine Co., Ltd.,

31 North Seventh Street,

PHILADELPHIA, PA.

N. B. A number of these tools have been sold, other sales are pending. Order promptly or repeat.

14 in. x 6 ft. Engine Lathe, screw front, double T rest.
15 in. x 4 ft. Engine Lathe, screw back, double T rest.
15 in. x 6 ft. Engine Lathe, screw back, gauge attachment.
16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in. x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest
16½ in. x 6 ft. Engine Lathe, screw front, compound rest
17 in x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17⅞ in. x 4 ft. Engine Lathe, screw back, double T rest.
17½ in x 8 ft. Engine Lathe, screw front, elevating block.
17⅝ in x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21⅝ in. x 10 ft. Engine Lathe, screw front, double T rest.
21⅞ in. x 10 ft. Engine Lathe, screw front, compound rest.
21⅝ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 10 ft. Engine Lathe, screw back, double T rest, cross feed.
22 in. x 10 ft. Engine Lathe, screw front, double T rest.
25 in x 14 ft Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 13⅛ in. holes with 12 in diam. 3-jaw combination chuck.
13 in x 6 ft. Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

PENNSYLVANIA MACHINE CO., Ltd.,

31 N. Seventh St., Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

11 Rail, Bar, Sheet and Clipping Shears.
6 Clay and Ore Pans.
21 Hoisting Engines.
40 Stationary and Portable Boilers.
44 Stationary and Portable Engines.
12 Steam, 9 Centrifugal and 2 Belt Pumps.
3 Air Compressors.
Two Standard Gauge Locomotives.
One 3 foot Gauge Locomotive.

THOMAS CARLIN'S SONS,

Allegheny, Pa.

DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¼ x 10 in., with Double Drums Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

FRANK TOOMEY,

131 North 3d St., Philadelphia, Pa.

FOR SALE CHEAP.

1 26 in. x 13 ft. Lowell Lathe. Heavy Tool. Fair order
1 20 in. x 8 ft. Gleason Lathe. Good order.
1 18 in. x 6 ft. Pond Lathe Fair order.
1 17 in. x 6 ft. Putnam Lathe. Fair order.
1 16 in. x 6 ft. Michael Lathe. Good order.
1 15 in. x 5 in. Morse Lathe. Good order.
1 14 in. x 6 ft Blaisdell Lathe. Good order.
1 14 in. x 5 ft. Blaisdell Lathe. Good order
1 13 in. x 5 ft. N. Y. S. E. Co. Lathe. Good order.
1 12 in. x 6 ft. Betts Lathe. Fair order.
1 11 in. x 5 ft. Prentice Lathe. Good order.
1 24 in. x 24 in x 5 ft Powell Planer. Good order.
1 22 in. x 22 in. x 5 ft. Putnam. First-class order.
1 22 in. x 22 in. x 4 ft Powell Planer. Good order.
1 17 in. x 17 in x 4 ft. Old Style Planer. Cheap.
1 22 in. Prentice Drill, B. G. S. F. First class order.
2 Suite Sensitive Drills. Good order. Cheap.
1 Lincoln Pattern Miller. Good order, with vise.
1 No. 2 Brown & Sharpe Plain Miller But little used.
1 Whitworth Shaper.
1 No. 4½ Wiley & Russell Bolt Cutter. First-class.
1 Old Style Davis Key Seater. Good order.
1 B. & S. Screw Machine, 1 in. swing. Fair order.
1 B. & S. Screw Machine, 8 in. swing. Good order.
1 B. & S. Head Finisher. Good as new.
1 B. & S. Head Slotter. Good as new.
1 No. 8 Cupola Blower. Sturtevant. Good as new.
1 No. 6 Boston Blower. Good as new.
1 Automatic Wood Lathe Clement Good as new.
3 16 in. Wood Lathes, complete with countershaft. Clement. First class.
1 Chair Round Machine with countershaft. Clement. First-class.
1 36 in. Band Saw. Connell & Dengler. First-class.
1 34 in. Band Saw. Clement. First-class.
1 15 in. Buzz Planer Clement. First class.
1 24 in. Planer. Graham. First-class.
2 Vertical Boring Machines Clement. First-class,
1 Saw Bench Graham. First-class.
1 Horizontal Boring Machine. Clement. First-class.
1 Jig Saw.
1 Shaper. Graham. First-class.
1 Chuck and Heads for Chair Rounds.
2 First-Class Glue Heaters.
1 Gould Gear Cutter. Good order.
1 250 Light Dynamo. Good order.
1 Shear and Punch combined. Light machine.
1 Nut and Washer Punch. Cheap.
1 Lot Wire Drawing Machines. Very cheap.
1 Lot Nail Making Machines. Very cheap.
1 Large Sorghum Roller. Weight 16,000 lbs. Very low.
1 44 in. Boring Lathe. Good as new.
1 36 in. Cupola, Blower, Rattler and Ladles. Good as new.
1 Power Chain Hoist.
1 Grindstone with iron frame. Cheap.
1 Steam Pump. Good order.

W. P. DAVIS,
Rochester, N. Y.

See balance of list next Issue.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spining Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 20 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,
143 Liberty Street, N. Y. City.

BARGAINS FOR CASH.

Write for Prices.

1 53 in. x 30 ft. Second-hand Lathe.
1 50 in. x 22 ft. " "
2 No. 9 Pulsometer Pumps.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second hand.
1 12⅛ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 No. 1 Root Blower.
1 2 H.-P. Shipman Oil Engine.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " " "
2 42 in. x 11 ft. " Boilers "
1 1 H.-P. Acme Oil Engine.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " " "
1 4 H.-P. Baxter Engine and Boiler.
1 15 H.-P. Shapely " " "
2 35 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P. Horizontal Engines and Boilers. New and Second Hand.
1 20 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft. Porter Lathe. New.
1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " " "

LOVEGROVE & CO.,
Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,
156 Oliver Street, Boston, Mass.

1 Pulley,	52 x 32 x 3 15-16.	54 x 12 x 3 7-16.
"	56 x 24 x 3 15-16.	60 x 25 x 3 15-16.
"	60 x 24 x 3 7-16.	60 x 14 x 2 15-16.
"	60 x 14 x 3 7-16.	62 x 14⅝ x 3½.
"	62 x 24 x 3½.	66 x 14 x 3 15-16.
"	72 x 22 x 3⅜.	72 x 19 x 3 15-16.
"	73 x 12 x 4 9-16.	76 x 21 x 3 15-16.
"	84 x 25 x 6.	84 x 21 x 4 7-16.
"	91 x 19 x 4 7-16.	102 x 15 x 4 15-16.

—: FOR SALE BY :—
D. B CRUIKSHANK,
243 Dyer St., Providence, R.I.

Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,
123 N. Third St., Philadelphia.

50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

THE SCRANTON SUPPLY AND MACHINERY CO.,
Scranton, Pa.

Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

WM. H. PERRY & CO.,
Providence, R. I.

FOR SALE.

New and Second-Hand

METAL WORKING

MACHINERY.

Send for list of same for immediate delivery.

Wanted to Purchase for Cash,

Second-Hand

Metal Working Machinery.

Geo. Place Mch. Co.,
120 Broadway, New York.

ROCK DRILLS, 5 in., 3½ in., 3 in., 2¾ in., 1¾ in., but little used; with or without tripods, steels and hose. Ingersoll or Sergeant make.

LIGHT LOCOMOTIVE, Baldwin, 9 in. x 14 in., 36 in. gauge, Forney Type, in good condition.

STEAM SHOVEL, 1½ Cubic yard Barnhart Shovel, used 18 months.

ENGINE and BOILER, 35 H.-P. engine; 50 H.-P. horizontal tubular boiler, nearly as good as new.

F. W. IREDELL, 10 Park Place, New York.

LIGHT RAILS

35 tons extra fine 20 lb. steel, 20 tons very good 16 lb. iron. Also lot 30s and 35s.

Locomotives, Cars, Hoisting Engines, Stone Crushers, Contractors' Tools, &c.

Thos. P. Conard,
206 Walnut Place, Philadelphia.

NEW 14 in. SWING

DEXTER LATHES.

5 foot bed $180.00. 6 foot bed $185.00.

Also 16, 18, 21 and 24 inch swing.

Send for cut and full description.

A. B. Pitkin Machinery Co.,
PROVIDENCE, R. I.

Mention *The Iron Age.*

FOR SALE.

SECOND-HAND,

1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

The Powell Planer Co.,
Worcester. Mass.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small. "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

CLOSING OUT SALE. CHEAP.

One single-spindle drill press, 22-inch, Reed.
One Garvin hand lathe, 4 feet x 13 inch swing.
One Prentice lathe, 6 feet x 12 inch swing.
One Juengst shaping machine, 16-inch swing.
Parker's swivel vises, small special gear cutter, iron split pulleys, lathe tools, hexagon top bolts, flat bar and plug gauges.
Cabinet maker's bench.
Office furniture, desks and safe.

E. S. LEAYCRAFT & SON,
44 Dey St., New York.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $300 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

Bargains for cash before removing to our new store, 46 N. 7th St.

One 10 x 24 Horizontal engine. A No. 1 condition.
One 4 x 4 " " "
One 8 x 14 Vertical " " "
One 6 x 6 " " New.
One 7 x 7 " " "
One 5 x 6 " " "
One 6 x 7 " " "
One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.
HIGH & DAMPMAN, No. 123 N. 3rd St. Philadelphia.

FOR - SALE - CHEAP.

Deane Piston Pump, 6 in. suction 4 in. discharge, almost new.
Address
C. W. SCHULTZ & CO.,
No. 368 Walnut St., Philadelphia.

FOR SALE.

One 21 in. x 13 ft. Lodge & Davis improved Engine Lathe. Complete.
One 24 in. x 20 ft. Fifield Engine Lathe. Complete.
One 3 ft. Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.
DANIEL KELLY,
51 N. Seventh St., Philadelphia.

FOR SALE.

BESSEMER PIG IRON

3000 tons No. 1 Bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

JUPITER FURNACE CO.,
6-28 Laclede Building, St. Louis, Mo.

STEEL RAILS.

We offer 100 tons second-hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).
H. V. L. MEIGS & CO.,
136-138 So. 4th St., Philadelphia.

IRON and STEEL or MACHINE Works desiring a **SPECIALTY.** Exclusive territory granted. Address "SPECIALTY," Office of *The Iron Age*, 220 So. Fourth Street Philadelphia, Pa.

1 2000 lb. double standard Bement Steam Hammer with Anvil and extra Piston Rod. Hammer is in first-class condition. Immediate delivery.

Geo. Place Mch. Co.,
120 Broadway, New York.

FOR SALE.

Large lot of Loco. Boilers, 50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

Second-Hand Boiler Tubing

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.
Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address
Wm. F. Jarvis & Co.,
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FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.
BUSSENIUS & CUNLIFFE,
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FOR SALE.
CRANK and GEARED SHAPERS.

Write us for Bargains.
J. STEPTOE & CO., Cincinnati, O.

Large Planer, For Sale Cheap.

Built by D. W. POND.

20 ft. bed., 43 inches between housings (extra heavy). Latest make, only used one year. Apply to
J. NUTTALL,
1723 N. 5th St., Philadelphia, Pa.

CHARCOAL IRON BLAST FURNACE.
FOR SALE OR LEASE.

A 50 ton Iron Furnace, with charcoal ovens, tramway to our fields, pipe line to reservoir, switches connecting with trunk railroad at its site. A most complete plant in every detail. For information address
EDW. S. MAUNSELL,
P. O. Box 410, New Orleans, La.

For Sale or Lease, with Large Contracts ready made.

A well-equipped freight car factory, with cheap lumber, iron and coal. A rare opportunity to go right to work profitably. Address
"CAR FACTORY,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

CORLISS ENGINES, BOILERS, ROLLS, SHEARS, &c.,

OF BEST CONSTRUCTION.

For Rolling Mills, Electric Light Plants, &c., &c.

24 x 36 and 32 x 60 Vertical Corliss Engines.
30 x 72, 23 x 48, 18 x 42 and 12 x 36 Horizontal Corliss Engines.
24 x 36, 18 x 36, 10 x 16, 10 x 12 Slide Valve.
11 x 21 and 14 x 24 Buckeye; 13 x 12 Armington & Sims.
4 80 H.-P. Steel Boilers; one 90 H.-P. Boiler; 35 and 50 H.-P. Locomotive Boilers.
1 300 H.-P., 3 100 H.-P. Sectional Safety Boilers.
1 300 Gal. Cameron Pump; 1 No. 7 Blake; 1 Duplex, Smith & Vail, 6 x 4 x 6.
1 14 in. x 5 ft. Screw Cutting Lathe; 4 heavy Shears; 1 Steam and 1 Hydraulic Riveter.
Send for Schedule.

GEO. M. CLAPP, Agent,
74 Cortlandt Street, - New York.

FOR SALE. SECOND-HAND.

Horizontal Tubular Boiler, 6 ft. x 14 ft.
Horizontal Tubular Boiler, 5 ft. x 15 ft.
Horizontal Tubular Boiler, 5 ft. x 16 ft.
Horizontal Tubular Boiler, 4½ ft. x 18 ft.
Horizontal Tubular Boiler, 4½ ft. x 12 ft.
Horizontal Tubular Boiler, 4 ft. x 15 ft.
Horizontal Tubular Boiler, 4 ft. x 9 ft.
Horizontal Tubular Boiler, 3½ ft. x 14 ft.
Horizontal Tubular Boiler, 3 ft. x 12 ft.
And 42 other Horizontal Tubular Boilers.
ZELL WATER TUBE SECTIONAL BOILER, 75 H.-P.

Vertical Tubular Boiler, 48 in. x 120 in.
Vertical Tubular Boiler, 48 in. x 96 in.
Vertical Tubular Boiler, 48 in. x 90 in.
Vertical Tubular Boiler, 48 in. x 60 in.
Vertical Tubular Boiler, 42 in. x 84 in.
Vertical Tubular Boiler, 40 in. x 90 in.
Vertical Tubular Boiler, 38 in. x 78 in.
Vertical Tubular Boiler, 36 in. x 96 in.
Vertical Tubular Boiler, 36 in. x 84 in.
Vertical Tubular Boiler, 36 in. x 72 in.
And 68 other Vertical Tubular Boilers.
Engines, Hoisters, Elevators, Pumps, Dynamos, and **General Machinery.**
MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers, 6 spindle for ⅝ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern
2 Heaters, medium and large size.
1 No. 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.
W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

WANTED.

SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.
"MANUFACTURER," P. O. Box 1840,
New York, N. Y.

FOR SALE OR TO RENT.

The premises formerly occupied by The Stiles & Parker Press Co., Middletown, Conn., comprising Machine Shop, Blacksmith Shop and Foundry, supplied with new 100 H.-P. boiler, engines, traveling crane, blower and main lines of shafting. Everything in first-class order. Photographs and plans furnished on application.

E. W. BLISS CO., Ltd.,
17 Adams St., Brooklyn.

FOR SALE.

A first-class heavy Milling Machine, practically new, made by first class maker, terms reasonable; will exchange for punching machine. Address "IRON WORKS," 29 Broadway.

Changed Weekly.

— PLANTS. —

WANTED.—By Philadelphia Machinists employing 75 hands, new location nearer New York.

FOR SALE.—Tack Works, 25 Machines, Illinois.

WANTED.—Location for Polished Rod Manufacturer, within 100 miles of New York; building about 100 x 30 with one or two wings preferred. Send for names of above.

FOR SALE.—Vineland, N. J., by R. S. Armstrong's Sons foundry and machine shop, on two Railroads, buildings 60 x 90, acre of land. Depot across the street. Splendid location for light manufacturing, being near Philadelphia and New York.

— FOR SALE. —

BOLT HEADERS.—Five new, two second hand, made and owned by Samuel Hall's Sons, 229 West 10th Street. Will make all kinds of bolts: will make square and hexagon without changing tools: will make round, square, button head, round or square under the head: will head rivets: will head from ¼ to 1¼ inch inclusive. These are made in the strongest manner and for service. If you can use or sell write them direct, or the undersigned.

CARS, Flat, 12 Penna. R. R. Standard.

ENGINE, Roper, 5 H.-P. Offer wanted.

GAS ENGINES, 6 and 10 H.-P., new, guaranteed, perfect order, will put in on trial within reasonable distance. By Pennsylvania Diamond Drill Co.

TO TOOL MAKERS, have large lot of seasoned Dogwood and Persimmon Blocks, sawn to sizes. Can you use them?

STREET CAR, combination, half open, half closed.

LOCOMOTIVE, 34 in., saddletank. Perfect order. Pa.

PIPE, 5 inch flange, good.

WIRE for bundling, different sizes.

CARS dump, 20, side, 2 and 5 yds.

RAILS, 16s, 40s, 3 s, fit to relay.

HARDWARE DEALERS, BIRD CAGE MANUFACTURERS, have two highly finished racks made by Mitchell, Vance & Co. for an exhibition, about 15 feet high, 25 arms each, which will be sold at a low price.

—Agents Wanted.—

WAECHTER, LANE & CO., Canton, Ohio, on their Small Steam Pumps, claimed to be at least equal to any made and a boon to agents.

PENNSYLVANIA DIAMOND DRILL CO., Birdsboro, Pa., for their Diamond Prospecting Drills. Liberal inducements offered.

W. R. SANTLEY & CO., Wellington, Ohio, for their well known Belt Holder. Thousands in use and every one a recommendation.

HARKINS FOUNDRY CO., Bristol, Pa. for their unexcelled dumb bells, quoits and specialties in hardware.

— WANTED. —

Correspondents in every town and city to whom I can send lists of what is offered me for sale and to whom I can offer agencies for articles that are sent me. Let me hear from you.

H. H. Mansfield,
126 Liberty St., N. Y.

Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,

59-73 West St., - Brooklyn, N. Y.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

THOMSON-HOUSTON MOTORS FOR SALE.

One 35 H.-P., one 20 H.-P., T. & H. Motors, second-hand, in perfect condition, for sale cheap.

NEW BEDFORD IRON FOUNDRY,
New Bedford, Mass.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

TO LET.

The Engine Works at Newburgh, N. Y., at present occupied by Wm. Wright, is offered to let from May 1st, 1892.

The property consists of machine shop, foundry, boiler, forge and pattern shops with a full equipment of tools.

The works are located in the heart of the City and convenient to railroad and river transportation. For terms apply to

HOMER RAMSDELL,
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Twenty ton Steam Crane, New. 26 foot Mast, 35 foot length of Jib. For particulars, address

SHARON STEEL CASTING CO.,
Sharon, Pa.

MILL PROPERTY TO LEASE AT SOUTH CHICAGO, ILL.

A mill with improved machinery for manufacture of pipe, for lease on long term to desirable party; much of machinery can be used for other manufacturing purposes to great advantage; property has exceptional railroad facilities. Address

A. LIEBERMAN,
office, 1461 State St., Chicago,

Whose yards will be located at 93rd St. and Anthony Ave., adjoining mill property.

FOR SALE.

35 lb. and 30 lb. T rails, second-hand, suitable for relaying; four miles with fastenings, by

MANOGUE-PIDGEON IRON COMPANY,
Memphis, Tenn.

FOR SALE.

Cheap if taken at once. Good iron yard office, office fixtures, scales, sheds and lease.

BURNSTEIN BROS.,
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WANTED. CUPOLA.

Shell 78 inches. Must be complete and in good order.

F. LAWRENCE & CO.,
315 Willings Alley, Philadelphia.

Wanted, Manufacturers.

FREE SITE, CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants,* in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties.* We are *not bound* to *any locality* and will give *unbiased information* on application.

Write for proposition blank.

AMERICAN LOCATING CO.

(INCORPORATED),
41 & 41A Nat. Ger. Am. Bank Bldg.,
St. Paul, Minn.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and Stove Plate. Correspondence solicited.

WM. D. BENNAGE & CO.,
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GREAT BARGAIN.

Large manufacturing plant, with three acres of land, at Pearl River, N. Y., 27 miles from New York City. Opposite Railroad Depot, two-story brick buildings, 300 feet long, with ample land for enlargement, with side track, &c. Well lighted all around; with 80 H.-P. engine and boiler, shafting and pulleys, iron melting furnace, cheap labor and freights. To be sold at a sacrifice to close an estate. For particulars apply to J. H. BRAUNSDORF, Executor, Pearl River, N. Y.

WANTED, Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired. "A. B.," office of *The Iron Age*, 146 Franklin St., Boston, Mass.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address

T. C. KERRICK,
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Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points.

ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.

CHAMBER OF COMMERCE BLDG, CHICAGO
THIRD NATIONAL BANK BLDG, CINCINNATI, O.

A MODEL AND MODERN

STOVE FOUNDRY

FOR LEASE OR SALE.

A Foundry consisting of molding room 120 x 145 feet, main building 50 x 160 feet, three stories high, engine and boiler room 25 x 50 feet, stock house 20 x 20 feet and supply and cleaning rooms 20 x 120 feet, covering in all about 34,000 square feet; the buildings are all of brick, steel roofed, and are situated at Clifton Forge, Virginia. They contain a large amount of machinery including a large lot of stove patterns especially designed for them, and with an expense of between $2000 and $3000, the plant could be put into full operation immediately.

This Foundry is most advantageously situated, being but three miles from the Longdale and Lowmoor Furnaces and but a short distance from the coal fields. Both pig iron and coal or coke can be had down at the Foundry at the very lowest rates and a good market is ready for either stoves or the product of a general foundry business, with freight rates which will compare favorably with those of any other point. This plant will be leased at a nominal rental to reliable and responsible party who will operate it, with the privilege of purchasing in a stated period on liberal terms. Correspondence in this matter or a personal inspection of the plant is solicited. Address

LEWIS HARMAN,
General Manager, Clifton Forge, Va.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,
Suburban Traffic Agt., 317 BROADWAY, N. Y.

Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

MAHONING FOUNDRY AND MACHINE SHOP
Danville Pennsylvania.

FOR SALE.

In a flourishing city in Illinois, a clean, neat stock of Hardware, Stoves and House-Furnishing goods. Stock will inventory $8000 or $9000. Builders' Hardware a very prominent department, together with Tin and Furnace work. Owner will assist buyer till fully posted and acquainted with customers. Address

"FLOURISHING CITY,"
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THE NEW

ROUTE TO COLORADO.

First-class Sleeping Cars—Electric Lighted—run daily between Chicago, Omaha, Lincoln and Denver, via the Short Line of the Chicago, Milwaukee and St. Paul Railway—Chicago to Omaha—and the Burlington Route—Omaha to Lincoln and Denver. Leave Chicago 6 00 P. M., arrive Omaha next morning, Denver second morning for breakfast, face and hands washed, ready for business or pleasure. Time and money saved. All Coupon Ticket Agents in the United States and Canada sell tickets via the Chicago, Milwaukee and St. Paul Railway, or address

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General Passenger Agent, Chicago, Ill.

MANY MANUFACTURING COMPANIES now employ Lawyers in the companies' own offices to draw contracts, &c., keep corporation papers properly and attend to some general matters so as to prevent litigation and loss. I should like to accept such a position at a fair salary. Am 31, eight years a lawyer. Have some business experience and knowledge of accounts. Own a good law library. Best legal and general references. M. I. BROCK, 2025 Wallace Street, Philadelphia, Pa.

A SELECTED LIST OF

HARDWARE DEALERS

—5000—

No two from same city.
No city less than 1000 inhabitants.
Dealers of best credit only.
Revised March 1st, 1892.
Cover entire United States.
I mail circulars as furnished in 2¢ stamped and sealed envelopes.
To manufacturers of any Hardware and specialties in particular this is a great opportunity to reach the cream of the Trade.

Address "K. R. P.," Box 414,
office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE. WELL EQUIPPED

Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

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WANTED.

To communicate with the owners of a modern Coke Blast Furnace, who are open to a proposition to move it to the best location in the country,

"COKE BLAST FURNACE,"
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Hardware Stock for Sale.

An exceptionally clean stock of Hardware, Stoves and Tinware, with Tinners' Tools for sale. Store is located in Ottumwa, in the best town in the State for business; furnace and job work. Population 16,000; stock will invoice about $5000. Located on Main St., as good as any in the city. Illness of proprietor is reason for selling. Address W. H. KEATING & CO., 118 Main St., Ottumwa, Iowa.

FOR SALE.

At West Superior, Wis., the best growing city in the United States, the best location in West Superior, the best and finest stock of hardware, the most elegant finished hardware fixtures in the State. Stock will invoice about $12,000, fixtures cost $1500. Owner has been in business 30 years and wants to retire from business and go abroad for rest and health. Any one looking for a location will find this a rare opportunity. For further particulars or information, address the owner, GEO. M. DRUM, West Superior, Wis.

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Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.

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TO BUY.

A No. 2 or No. 3 Blake or Gates Rock Crusher, second-hand. Address, giving price and full particulars,

CORYELL FLINT PAPER COMPANY,
Williamsport, Pa.

FOR SALE.

For cash or good security, well-established hardware store and tinshop business. Best location in Chicago; everything first-class; fine fixtures; horse, wagon, safe, etc.; no old stock, sales from $20,000 to $25,000 per annum, good profits; lease of store till May 1, 1893; value $3500; good reasons for selling. This is a genuine bargain. Call on or address owner,

H. R. BUCHANAN,
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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

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IF FROM ANY CAUSE

You have goods to offer at specially low figures for **SPOT CASH**, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of **SPECIAL LOTS**,
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Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

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Successors to
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WHOLESALE
HARDWARE AUCTIONEERS,
19 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
Send for Catalogue,

143 Chambers St., New York.

THE NATIONAL CORDAGE COMPANY

NEW YORK, April 5, 1892.

The Board of Directors have this day declared the regular quarterly dividend of TWO PER CENT. on the preferred and TWO AND ONE-HALF PER CENT. on the Common Stock of this Company, payable May 2 next at the transfer office of the Company, 135 Front St., this city. The books will close April 15 and reopen May 3 next. CHARLES DAVIS, Treasurer.

WANTED.

Foundry Superintendent. Must be thoroughly conversant with the melting of iron, also the various mixtures for different kinds of work. Must have a thorough knowledge of molding, core making, &c. Also competent to manage workmen and arrange prices for work. No one need apply unless he can furnish strictly first-class references. Address "SUPERINTENDENT," P. O. Box 1165, New York, N. Y.

FOR SALE.

The stock and fixtures of a first-class hardware store doing a good business and nicely located. For further particulars apply to
BOX 233, Bristol, Pa.

SITUATIONS WANTED

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A SUPERINTENDENT and Engineer will soon be available for responsible position in large manufacturing establishment; has had valuable and varied experience in designing, shop management and as superintendent; he has given particular attention to economical designs and methods of production and has had large personal observation, including that of professional visits to European countries. Address "E. D. B." office of *The Iron Age*, 96-102 Reade St., New York.

BY PRACTICAL Steel Roller, position as roller or foreman; capable of taking charge of any department of steel mill. Address "R. & F.," office of *The Iron Age*, 96 102 Reade Street, New York.

BY A YOUNG MAN familiar with the hardware trade in Philadelphia and within a radius of 100 miles around that city, including Baltimore and Washington, the agency for several lines of hardware, cutlery or specialties of that nature, either on salary or commission, as may be agreed; unexceptionable references furnished. "HARDWARE" office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

BY A PRACTICAL MAN, a position as manager or assistant with a company manufacturing edge tools or forgings; willing to travel some, having had experience both abroad and in America, fully acquainted with the export trade; good references; age 36. Address Box 4414, office of *The Iron Age*, 96-102 Reade Street, New York.

TO MANUFACTURERS.-Englishman of practical and business experience (ten years in U. S.) requires responsible position in connection with some manufacturing concern; thoroughly experienced in etching on bright goods by all known processes; good accountant, &c. Address "ETCHER," Box 317, office of *The Iron Age*, 96-102 Reade Street, New York.

SALESMAN wants line of spoons, table cutlery or any other good selling line for hardware trade on commission. Parties desiring to be represented in Philadelphia, address "X. A.," office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

A YOUNG MAN of 25 holding position of head clerk in retail hardware and mill supply house and who thoroughly understands the business would like to make a change; best of references. Address LOCK Box No. 130, Willimantic, Conn.

AS FOREMAN of a Malleable or light gray Iron Foundry; thoroughly understands making iron from furnace or cupola; also understands annealing and molding; good references. Address "CUPOLA," Box 414, office of *The Iron Age*, 96-102 Reade St., N. Y.

BY THOROUGHLY PRACTICAL Bookkeeper and paymaster who has had long experience in black plate mills; is capable of taking entire charge of either office or mill; highest references and bond furnished. Address "BOOKKEEPER," Box 400, Pittsburgh, Pa.

SALESMAN selling to hardware trade in Pennsylvania for four years and has an established trade with the hardware dealers; is open for a line of hardware or manufacturing specialties. Address "PUSH," Box 414, office of *The Iron Age*, 96-102 Reade St., N. Y.

MANY MANUFACTURING Companies now employ lawyers in the companies' own offices to draw contracts, &c., keep corporation papers properly and attend to some general matters, so as to prevent litigation and loss; I should like to accept such a position at a fair salary; am 31, eight years a lawyer; have some business experience and knowledge of accounts; own a good law library; best legal and general references. M. I. BROCK, 2025 Wallace Street, Philadelphia.

A GENTLEMAN, middle-aged, of long experience as accountant, correspondent, &c., of superior address, education, judgment, integrity, fidelity and ability, desires to represent as traveler or agent a reliable house, to introduce some article of machinery or construction; New York or East preferred. Address, Confidentially, BOX 272, New Rochelle, N. Y.

BY A GUIDE MILL ROLLER, who is a steady, intelligent workman on all kinds of guide mill work, iron and steel; also thoroughly understands the draughting and turning of rolls; can bring together a crew of steady and reliable workmen if wanted; best of references can be given. Address "GUIDE MILL WORK," office of *The Iron Age*, 96-102 Reade St., New York.

MAN of 42, business and practical experience in cutlery, hardware, drop forgings, &c.; requires responsible position (with some outdoor work); first-class references. Address "K. B.," Box 47, office of *The Iron Age*, 96-102 Reade St., New York.

A PRACTICAL and educated mechanical Engineer, who has successfully filled positions of charge and responsibility in manufacturing concerns, is open for engagement; a good executive; well up in modern machine shop practice and labor saving devices; also in the economical production of duplicate and interchangeable parts; experienced in adapting old and originating new machinery and methods to decrease cost of production; can take charge of the erection of a plant from the ground up, including equipment. Address "PROGRESSIVE," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

MECHANICAL ENGINEER, experienced in mill machinery, hydraulics and hydraulic machinery, machine tools, pumps, tanks, stand pipes and wrought iron construction, with good business training, accustomed to handle men, make estimates and superintend construction, desires position as chief engineer or superintendent; personal interview solicited. "HYDRO," office of *The Iron Age*, 96-102 Reade Street, N. Y.

GENTLEMAN of 20 years' experience with home and foreign trade solicits correspondence with American manufacturers desiring a New York agent; unquestionable reference. Address JOHN G. ROLLINS, 4 Stone St., N. Y.

POSITION of responsibility, by middle aged man, experienced in retail and jobbing hardware, paints, lumber, mill supplies, &c; used to correspondence, accounts and care of help; best of references. Address "HARDWARE MANAGER," Box 47, office of *The Iron Age*, 96 to 102 Reade St., New York.

BY A THOROUGHLY COMPETENT man with 3 years of practical experience as foreman of an open-hearth steel plant making all grades of steel; or as melter; experienced in analyzing stock used; no objection to location. Address "OPEN HEARTH," office of *The Iron Age*, Room 511, Hamilton Building, Pittsburgh, Pa.

YOUNG MAN (26), thoroughly competent bookkeeper, double or single entry, two years' experience as stenographer, been several years in present position as bookkeeper for large manufacturers of machinery, wants position where hard work and attention to business will bring fair salary and advancement; references from past and present employers. Address "L. F.," Box 215, office of *The Iron Age*, 96-102 Reade St., New York.

BY AN EXPERIENCED Hardware man, a position as buyer and managing man with some good house in that line of business. Address "B. & M.," office of *The Iron Age*, 96-102 Reade St., New York.

AS SUPERINTENDENT, by a mechanic of ability who thoroughly understands the manufacture of locks and builders' hardware; 30 years' experience in the business; 15 years as foreman and superintendent; understands brass and iron foundry practice, pattern and die making; references and recommendations. Address "R. A.," Box 47, office of *The Iron Age*, 96-102 Reade St., N. Y.

A MECHANICAL Engineer who has had several years' experience in estimating, designing and superintending work desires a responsible position; has good practical knowledge of steam engineering and was superintendent for a considerable number of years in a large manufacturing company; can refer to present and past employers. Address "STEAM ENGINEERING," Box 324, office of *The Iron Age*, 96-102 Reade St., New York.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as superintendent of manufacturing establishment. Address "MULLACH" Box 35, office of *The Iron Age*, 96-102 Read treet, New York.

AN ACTIVE MAN of long experience in the steel business, both foreign and domestic, and with extensive acquaintance in the trade desires engagement as secretary, office manager or in any position of trust; is capable correspondent, accountant and bookkeeper; highest references. Address "LODGE 47," office of *The Iron Age*, 96-102 Reade St., New York.

MECHANICAL Engineer with exceedingly good experience in marine engineering, steam and hydraulic machinery, good shop experience, capable of handling men, desires position as assistant superintendent, manager or chief draughtsman in New York or vicinity. Address "MARINE," office of *The Iron Age*, 96-102 Reade St., New York.

A THOROUGH practical rolling mill manager or superintendent will be open for a position about May 1st; is highly indorsed for ability, sobriety and integrity. Address "IRON AND STEEL," P. O. Box 523, Pittsburgh, Pa.

AS BLAST FURNACE Superintendent, by energetic young man who is experienced in the metallurgy and practical working of blast furnace on all grades of iron and spiegel; also in selection of material; is experienced chemist. Address "FIRE BRICK," Box 317, office of *The Iron Age*, 96-102 Reade St., New York.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

A MARRIED MAN (age 37), with 15 years' experience in the retail department of a large wholesale hardware house in the North, desires a position in the South; reference furnished. Address "SOUTH," Box 317, office of *The Iron Age*, 96-102 Reade St., New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

EXPERIENCED and competent Chemist for blast furnace in Virginia; in making application please give reference and state experience and amount of salary required. Address "COMPETENT CHEMIST," office of *The Iron Age*, 96-102 Reade St., New York.

A STENOGRAPHER and typewriter; one having experience with machinery or mechanical engineering firm preferred.
THE GOULDS MFG. CO., Seneca Falls, N. Y.

TRAVELING SALESMAN; must be first-class and experienced in selling nails, merchant iron and steel to the jobbing trade. Address "IRON MANUFACTURER," Box 691, Cincinnati, Ohio.

FOUNDRY FOREMAN immediately; work principally heavy rolling mill, engine castings and rolls; must thoroughly understand making chill and sand rolls and bring best of references; state salary expected. Address LOCK BOX 375, Pittsburgh, Pa.

TRAVELING SALESMEN who have had experience in the hot and cold roll steel business; state age, whether married or single, where recently employed and salary expected for first year. Address "HOT AND COLD ROLLED STEEL," Box 414, office of *The Iron Age*, 96-102 Reade St., New York.

SALES AGENT for a well established rocking grate bar for New York and vicinity, also one for Boston and Philadelphia, or a general manager that could handle all three markets; the grates have first class selling qualities. Address Lock box No. 1527, New York City.

AN EDUCATED MECHANIC who is thoroughly up in modern practice; must be a first-class draftsman and designer; competent to take charge of drafting room and handle work in shop by a company building a special line of machine tools; state salary expected, experience and references. Address "X. X.," office of *The Iron Age*, S. E. cor. 4th and Main Sts., Cincinnati, O.

SALESMEN to carry Shimer Patented Hollow Handle Post Spade as side line on commission. L. & R. WISTER & CO., Philadelphia, Pa.

AGENTS IN ALL PARTS of the country visiting the Hardware and Implement trade to appoint local dealers agents for a good line of goods; liberal commission; in answering state territory covered. Address OSGOOD & Co., Binghamton, N. Y.

THE LATEST BOOKS.

Notes and Examples in Mechanics; with an appendix on the Graphical Statics of Mechanism. By IRVING P. CHURCH, C. E. This forms a companion volume to the writer's "Mechanics of Engineering" and contains varous notes and many practical examples, both algebraic and numerical, serving to illustrate more fully the application of fundamental principles in mechanics of solids; together with a few paragraphs relating to the mechanics of materials and an appendix on the "Graphical Statics of Mechanism." 146 pages and plates, cloth.... ... .$2.00

Safety Valves: their History, Invention, Antecedants and Calculations. By W. B. LEVAN. Illustrated pocket-book style, cloth $1.50; leather $2.00

Practical Carriage Building. A collection of articles compiled from those contributed to the columns of *The Blacksmith and Wheelwright* during the past few years, and covering the entire range of the art of carriage building from the plan of a vehicle to its completion, illustrating and describing fully the sectional parts. Edited by M. T. RICHARDSON. Beginning with some remarks on the proper timbers to use, plans for a carriage shop are described and illustrated; then come the tools, floor, bench and wood-working appliances necessary for a successful shop. Following this is a chapter on wheels and the repairing of wheels, and then are described and illustrated mortises, laps, gather of wheels, plumb spoke, etc. Illustrated, Vol. I, 224 pages, cloth.....$1.00

Ways and Means for Machinists, Metal Workers, Model Makers, Watch and Tool Makers, Jewelers, Draftsmen, etc. Being a collection of hints and helps not found in books usually written for this class of artisans. By A. H. CLEAVES, M.E. 125 illustrations, 158 pages, cloth $1.00

Mineral and Railway Map of Southwest Virginia and Contiguous Territory. The position of Southwest Virginia, Eastern Tennessee, West North Carolina, East Kentucky, and part of West virginia ores, coal areas, furnaces, collieries, manufactures, railways, roads, streams, mountains, towns and their population, leading industries, agricultural and pastoral belts, and the scientific and economic geology; iron, manganese, coal, zinc, lead, copper, sulphur, tin, gold, marble, slate and lithographic stone, are all shown on Boyd's Map of the Mineral Resources and Railway Facilities of Southwest Virginia and Contiguous Territory. This map extends from East of Roanoke, Lynchburg, Staunton and Danville, westward to Knoxville, Asheville, Cumberland Gap and Ohio River, Kenova and Cincinnati: a region unexampled in the progress of its safe mineral developement. Map is on a scale of six miles to an inch for its greater part. On cloth, pocket form, 21st edition..... .....$5.00

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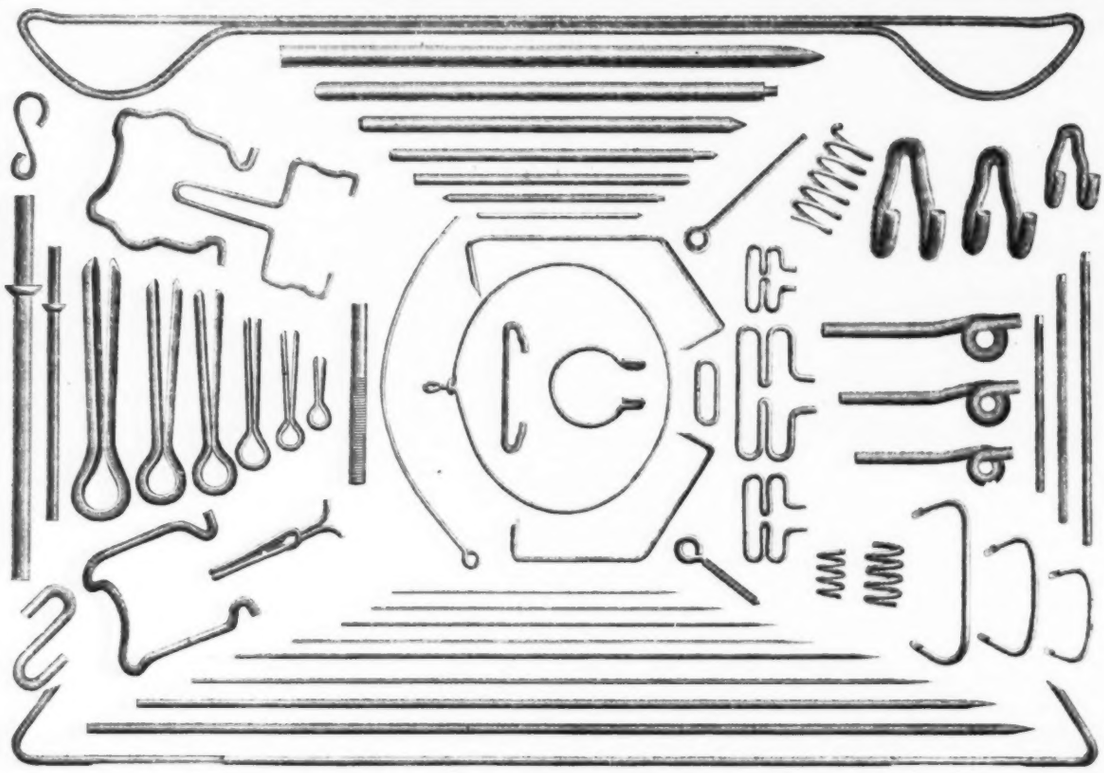

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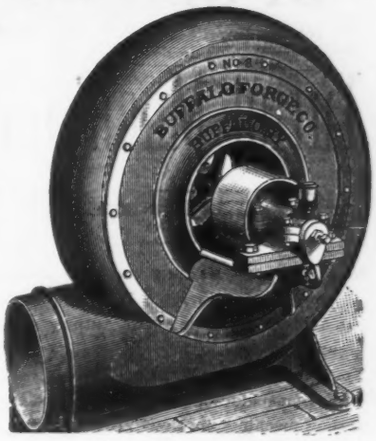

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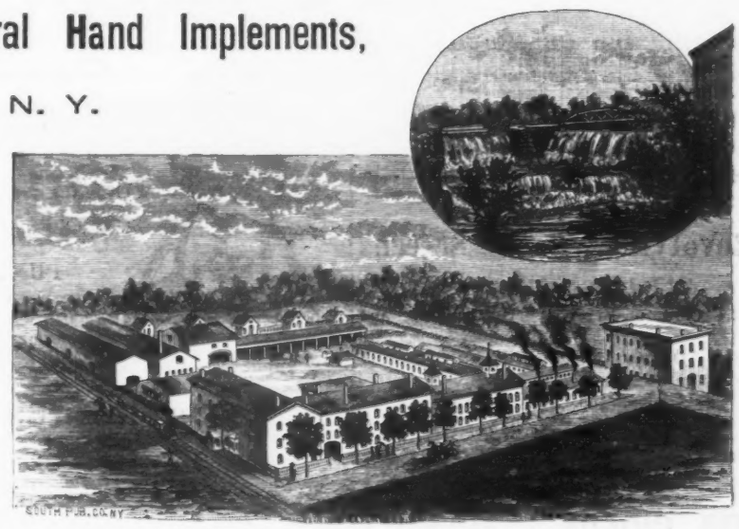

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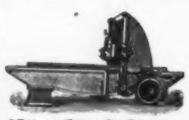

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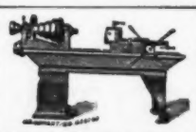

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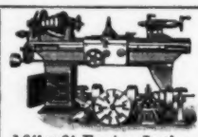

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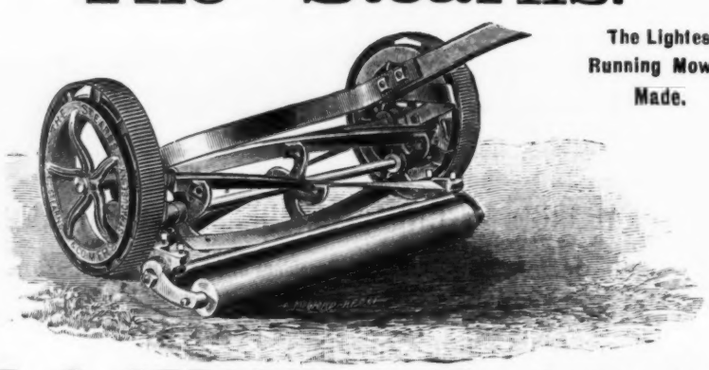

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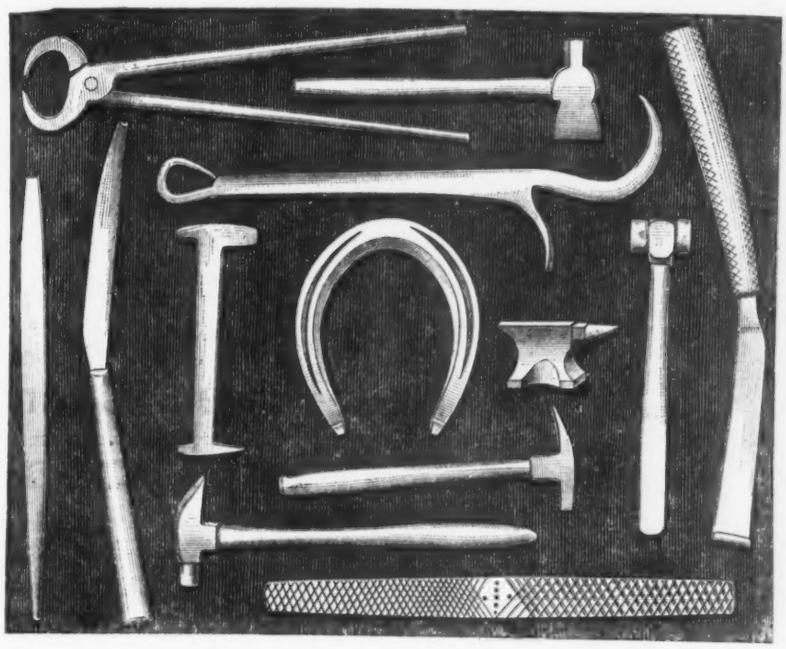

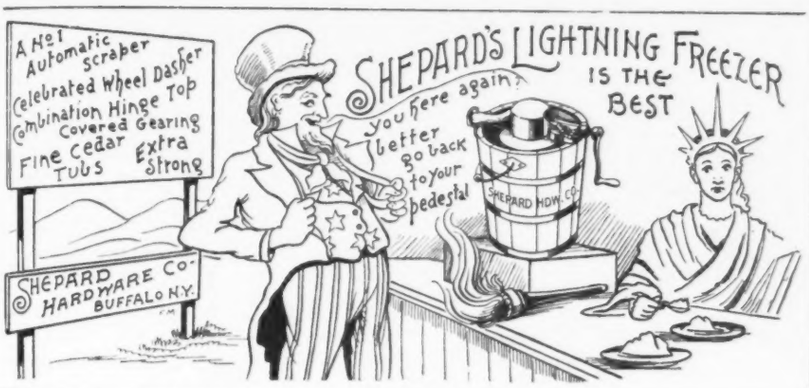

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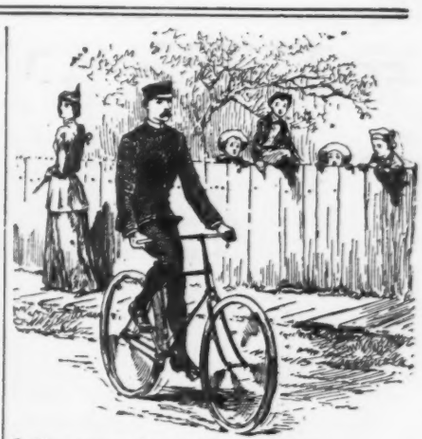

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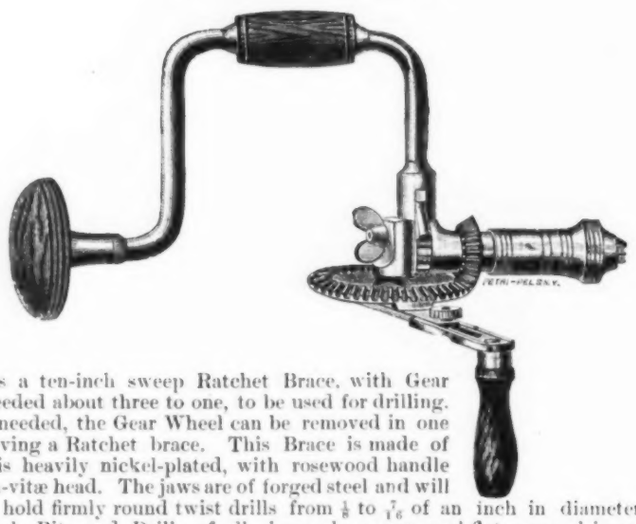

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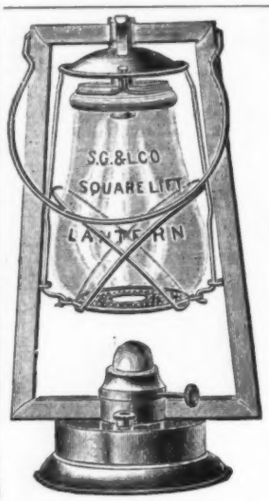

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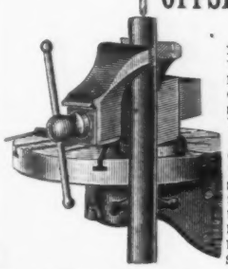

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Fig. 120.

Fig. 76.

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Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

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Fig. 209.

Fig.

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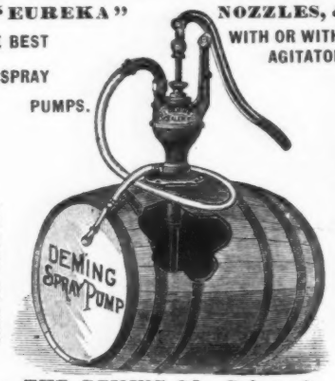

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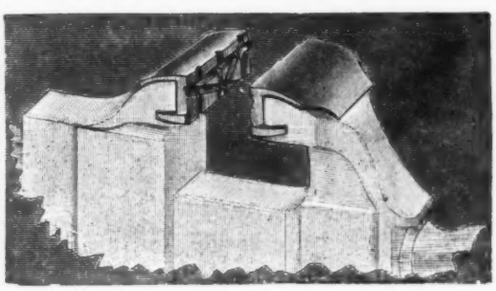

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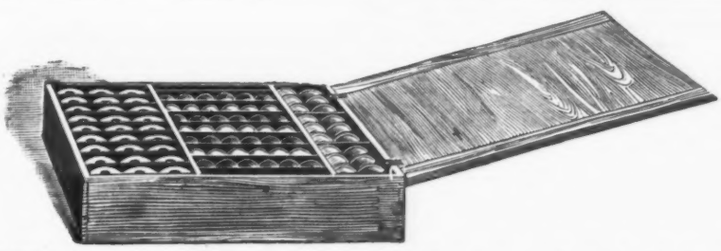

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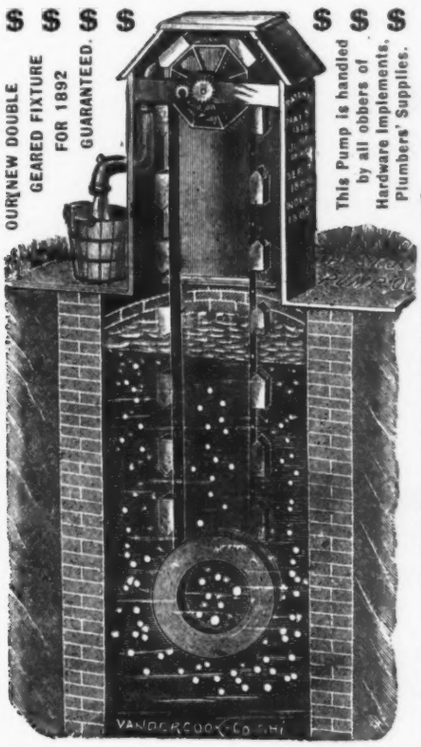

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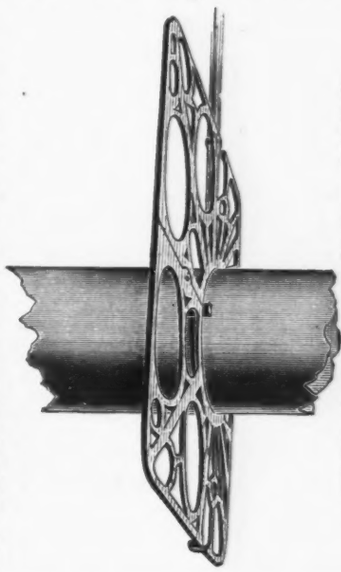

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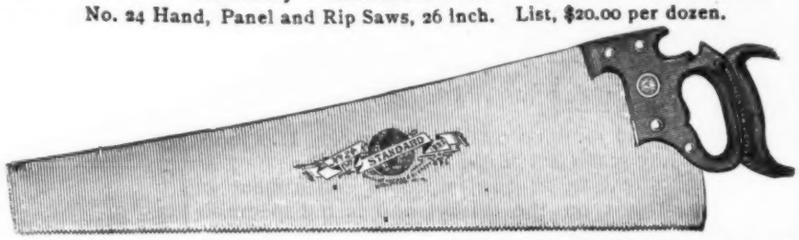

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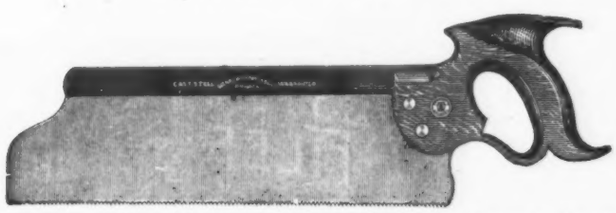

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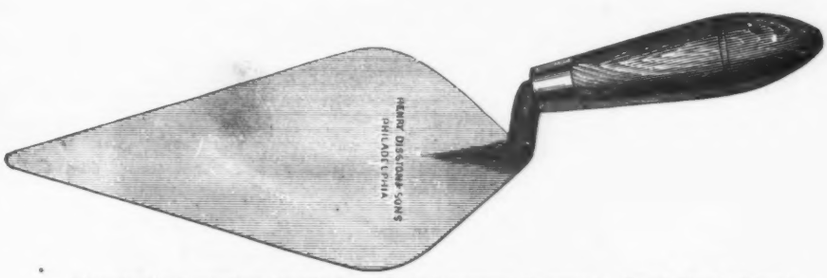

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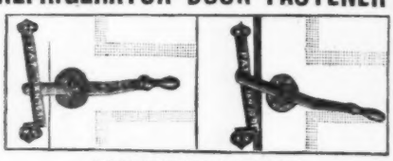
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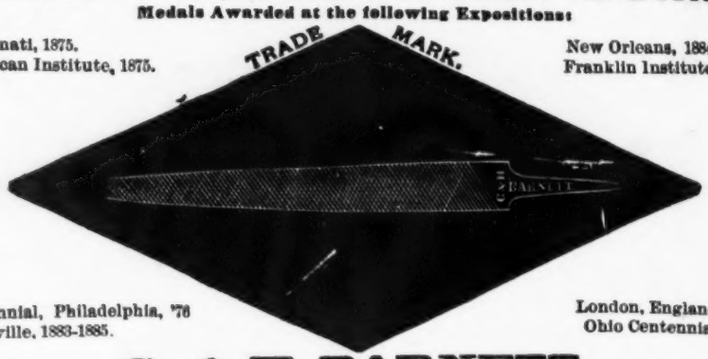

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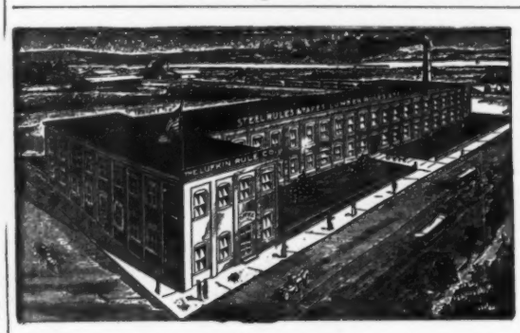

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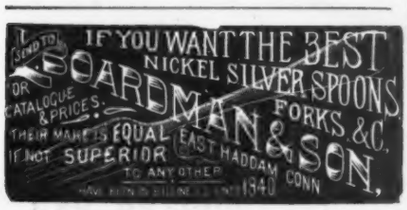

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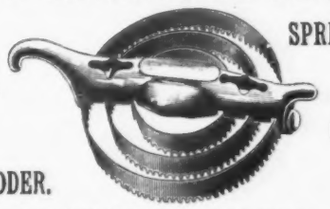

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Arranged to be held by Thumb and Little Finger (the natural way of holding a comb).

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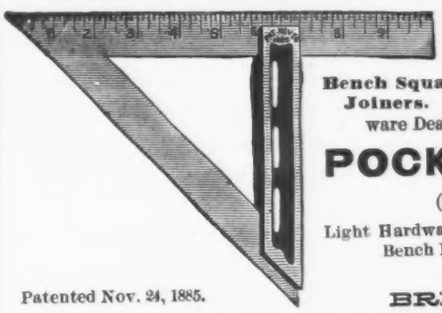

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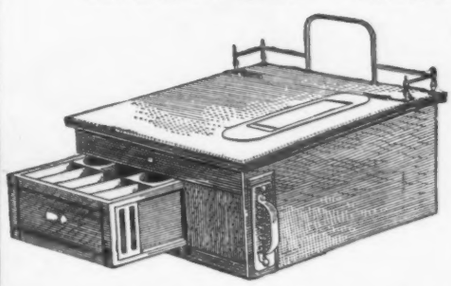

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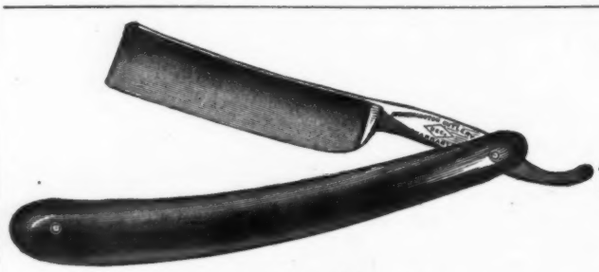

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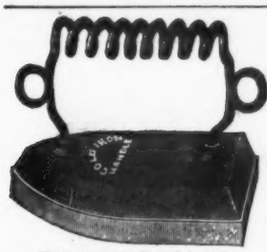

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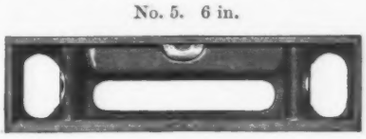

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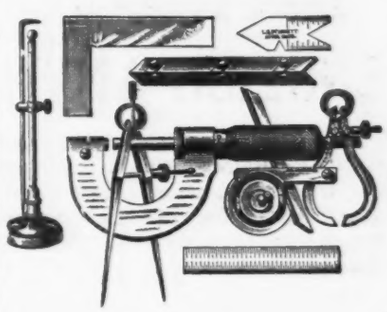

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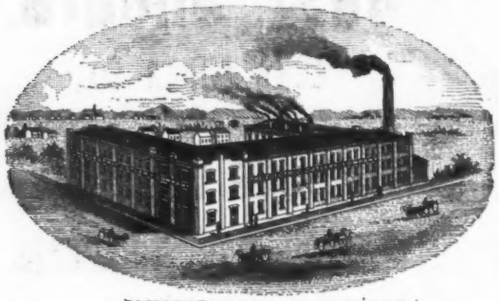

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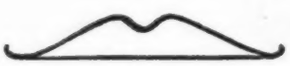
WADE & BUTCHER SHEFFIELD, ENGLAND Ⓑ OR  OR Ⓑ SPECIAL

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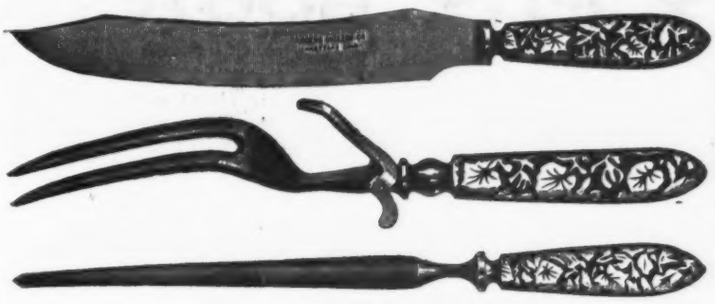

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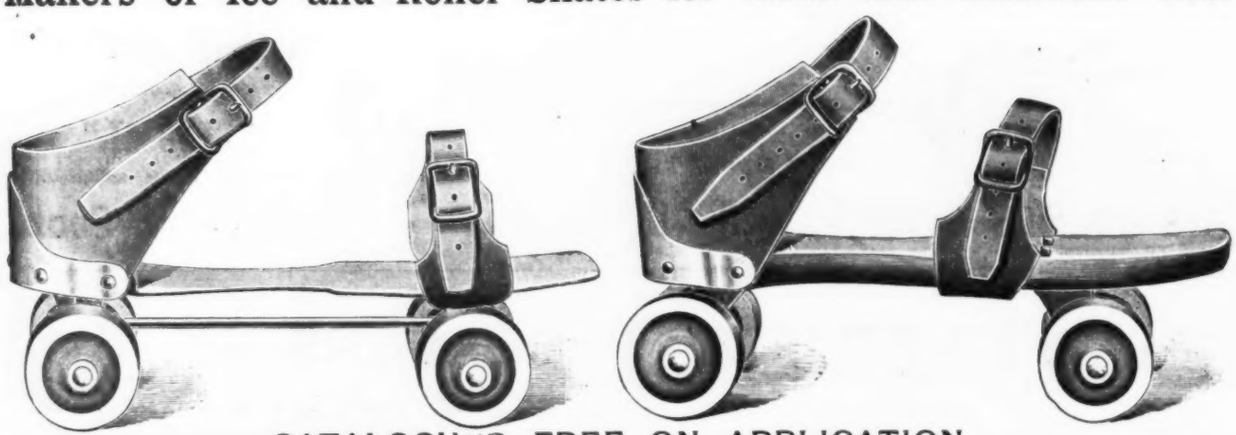

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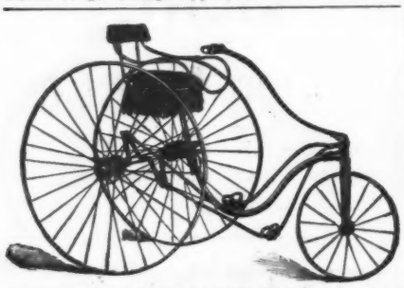

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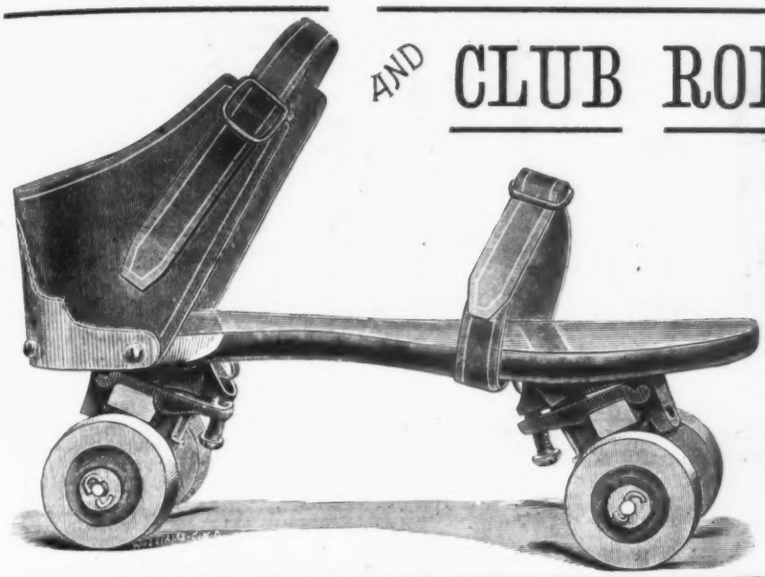

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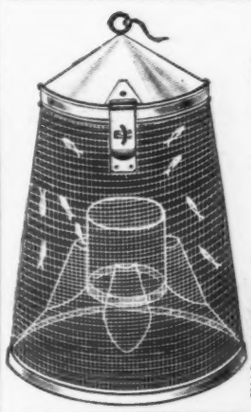

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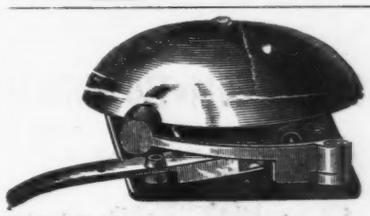

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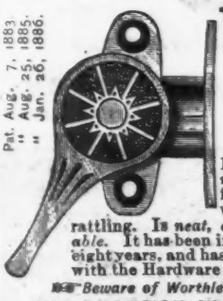

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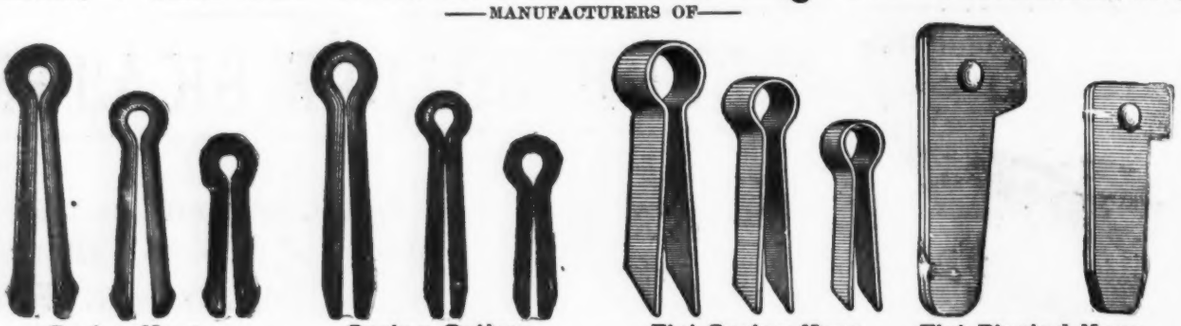

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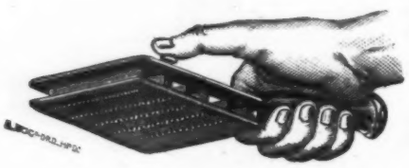

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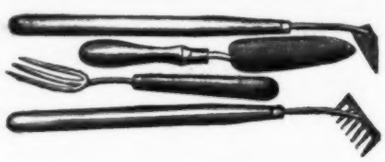

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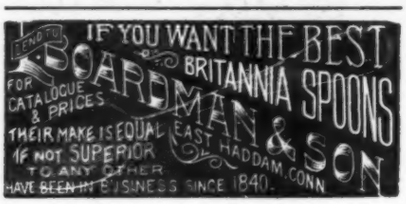

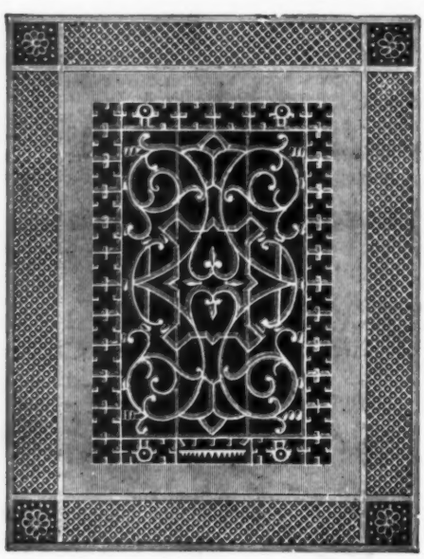

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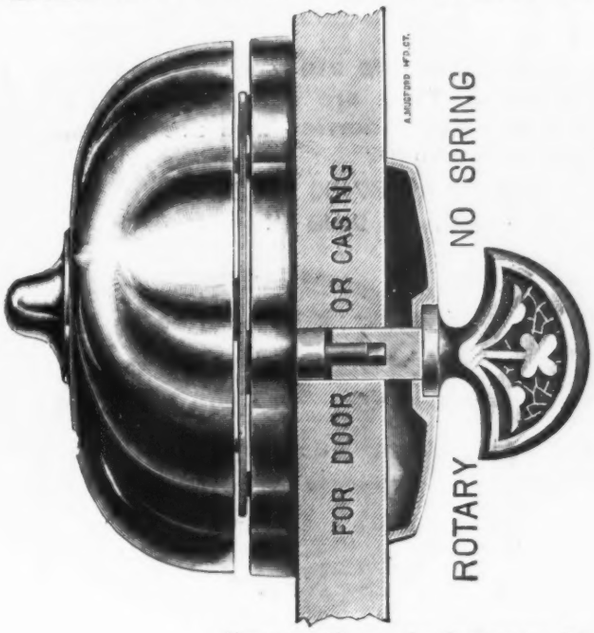
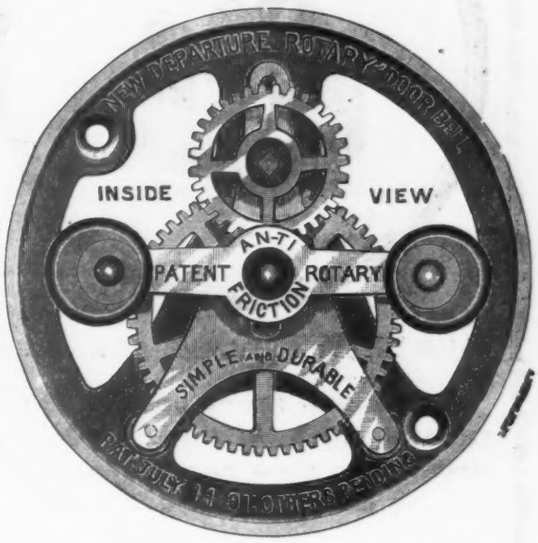




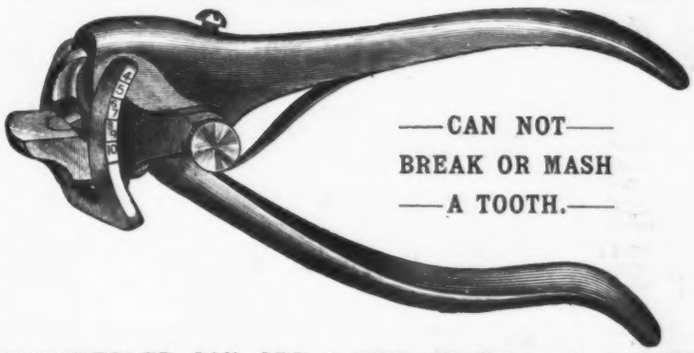
Have a Sample for your Counter, and watch the results.

The New Departure Bell Co., Sole Manufacturers, Bristol, Conn.

JOHN H. GRAHAM & CO., General Agents, 113 CHAMBERS STREET, N. Y.

YOU CAN MAKE NO MISTAKE!

LLOYD ACME SAW SET.



—CAN NOT—
BREAK OR MASH
—A TOOTH.—

A WOOD-BUTCHER CAN SET A SAW AS WELL AS A SAWYER.

The Screw on the top of the Set prevents mashing the Tooth. The Gauge on the side assures the correct set, and the small Screw on the face of the Set gives the required bend to the tooth. All wearing parts are made of steel, strong and durable.

LIST: HAND SAW SETS, $15.00 PER DOZEN. CROSS CUT SAW SETS, $30.00 PER DOZEN.

METROPOLITAN.

This differs from our other wood frame wringers of medium price in having malleable iron swinging clamps of a strong and improved pattern, that swing under the wringer, and a folding apron, allowing the machine to be closely packed for shipment, and it is preferred by many because of the small space it occupies in storage. It is a handsome, well proportioned machine, of hard maple frame, the wood being selected, free from defects and blemishes. Two top thumbscrews, metal journal boxes and oil cups combined, double gears, etc.

Furnished in natural wood or cherry stain without extra charge.

Write for Prices and Catalogue.

THE PEERLESS MFG. CO.,
CLEVELAND, OHIO.

Enterprise M'f'g Co.,

PHILADELPHIA.

Our Cherry Stoners are specially adapted to rapid work. They are easily adjusted for different sizes of Cherries and are durable, efficient and cheap.

Japanned, $7.50 per dozen.
Tinned, 9.00 " "

OUR FRUIT PRESSES ARE UNEXCELLED.

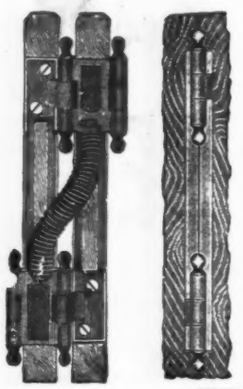
For making Wines, Jellies and Fruit Butters from all kinds of fruit, our Fruit Press will delight the good housekeeper.

It is not intended for making Cider.

Send for Full Catalogue and Price-List.

ENTERPRISE M'F'G CO., PHILADELPHIA.

Chicago Spring Butts



MANUFACTURED BY
Chicago Spring Butt Co.,
Chicago, Ill.

DOORS.	1 Jap'ed Pair.	21 Nickel Plated Pair.	31 Bronze Plated Pair.	41 Real Bronze Pair.	51 Polished Brass, Pair.
⅞ to 1 in.	$1.20	$3.00	$3.00	$8.50	$8.50
1⅛ to 1¼ in.	1.50	3.75	3.75	9.50	9.50
1⅜ to 1½ in.	2.50	5.50	5.50	12.00	12.00
1¾ to 2 in.	4.00	7.50	7.50	20.00	20.00
2¼ to 2½ in.	7.00	10.00	10.00	30.00	30.00
2¾ to 3½ in.	10.00	14.00	14.00	39.00	39.00

Write for Catalogue and Prices.

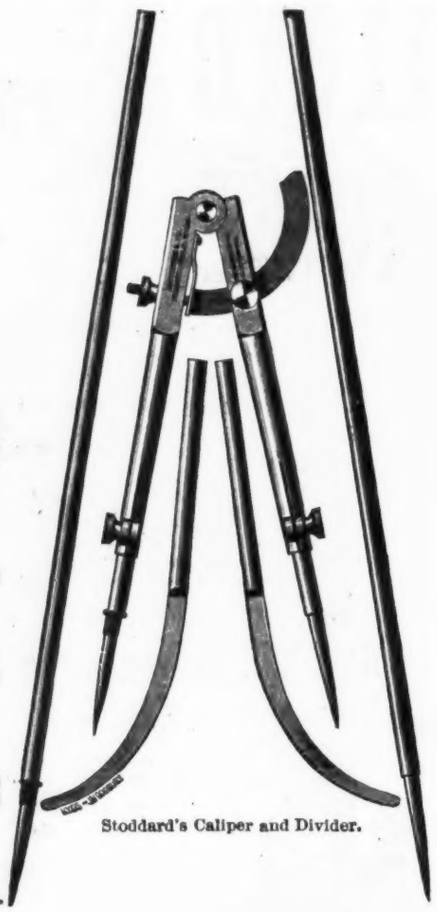
N. Y. Mallet & Handle Works,
MANUFACTURERS OF
MALLETS
ALSO
Cotton and Bale Hooks
Patented Feb. 13, 1877, a new combination of Hooks.
456 E. Houston St.,
New York City.

J. STEVENS'
Arms & Tool Co.

P. O. BOX 316,
Chicopee Falls, Mass.
MANUFACTURERS OF

Spring Calipers
—AND—
DIVIDERS.

FINE
MACHINISTS' TOOLS and FIREARMS.
—OUR—
Shooting Gallery Rifle
Is the Favorite Everywhere.
Send for ILLUSTRATED CATALOGUE.


Stoddard's Caliper and Divider.

"NEVER-BREAK"

COLD HANDLE
Wrought Steel Spiders,
WITHOUT RIVETS.

Will not absorb grease.
Will not impart flavor of previously cooked food.
Will not burn before cooking.
Will not scale.
Will not warp.
Will "NEVER-BREAK"

The Handle is made round, fits the hand perfectly and is ALWAYS COOL.

The **"NEVER-BREAK"** Spider is the ONLY Wrought Steel Spider manufactured WITHOUT RIVETS complete from ONE PIECE OF METAL.

THE BRONSON SUPPLY CO., CLEVELAND, O., U. S. A.
Branch: 72 Beekman Street, New York.

☞ALSO A FULL LINE OF WROUGHT STEEL COOKING UTENSILS.☜

Wrought Steel Hollow Ware.

"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

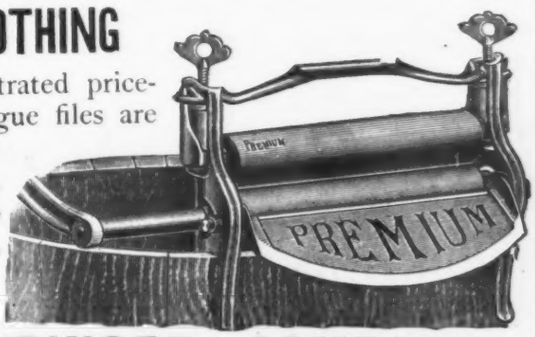
The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

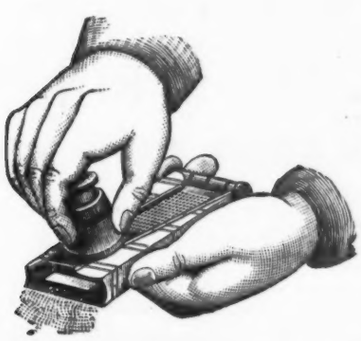
New York Stamping Co., Sole Manufacturers,
North 11th and Berry Streets, Brooklyn, E. D., New York.

IT COSTS NOTHING

to send for our illustrated price-list, and your catalogue files are incomplete without it. Write to the Factory, Montpelier, Vt., or to our Chicago store, 68 Lake St.



COLBY WRINGER COMPANY.



The Unique Nutmeg Grater

Uses Every Grain of the Spice.

STEEL EDGE STAMPING AND RETINNING CO.
89 State Street, Boston, Mass.,
PATENTEES AND SOLE MANUFACTURERS.

Palmer's Common Sense Frame Pulley

MANUFACTURED BY
PALMER HARDWARE MFG. CO., Troy, N. Y.

—THE—
AMERICAN KNIFE SHARPENER
For Carving and Bread Knives, Shears and Scissors.

Works perfectly and sells at sight.
Sample by mail, 25 cts.
Send for Circular and Prices.

MOSSBERG MFG. CO.,
ATTLEBORO, - MASS.

STRONG—EFFECTIVE—CHEAP.
Camp's Success Animal Poke
Pat. Feb. 3, 1880. Is the only Poke that successfully prevents Horses, Cattle and Mules from jumping fences and cures the habit

No Prickers
No Spurs to injure the animal. Ask your hardware dealer for it or write R. W. MONTROSS, Sole Manufacturer, Galien, Mich.

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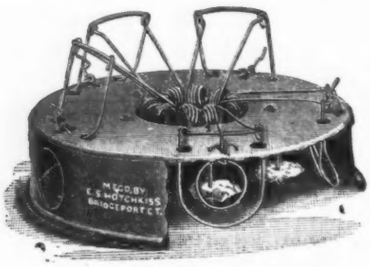
MANUFACTURER OF

HARDWARE

AND

HARDWARE SPECIALTIES.



Patented December 28, 1886.
Patented March 31, 1891.

Mouse Traps, Horse and Barbers' Clippers, Curry Combs, Rat Traps, Wrenches, Lemon Squeezers.

Write for Prices and Estimates.

COMMON MOUSE TRAPS
BEST FOR USE!

Ripley Mfg. Co., Unionville, Conn.

Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks. Magnetic Tack Hammers, Mallets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side 2 ft. Lap Board.

THE

UNIVERSAL SAD IRON CO.

MILWAUKEE, WIS.,

Manufacturers of the Best Charcoal

"SAD IRON"

in the world for

Families, Dress and Cloak Makers and Tailors.

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"The New York Safety Dumb Waiter,"
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Made specially to be sold by Hardware Stores. Thousands in use. Catalogues on application.

THE STORM MANUFACTURING CO.
NEWARK, NEW JERSEY.
Formerly of Poughkeepsie, New York.

COLD STORAGE FOR FAMILY USE.

China Closet, Side-Board and Refrigerator. No. 36¾.

The **FAMOUS LEONARD CLEANABLE** is the only perfect

COLD DRY AIR REFRIGERATOR

that has perfect circulation. ***Won't sweat or mold.*** Six walls to protect the ice.

Housekeepers Recognize Its Merits.

Made in ***all styles*** and ***sizes Hard Wood, Antique or Sixteenth Century Finish*** with ***air tight lock. In buying*** ask for ***"Leonard Cleanable"*** and insist on having it. There is no good substitute. Send for illustrated catalogue and price-list. Sold on the exclusive agency plan. All new designs for 1892.

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WE want one responsible hardware merchant in every town to handle the best selling specialty in the market. Write at once and secure it—no competition, good profit.

The ROCKER WASHER has proved the best seller and the most satisfactory to the people of any washer ever placed on the market.

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ROCKER WASHER CO.,

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DUPLEX JOIST HANGER

Abolish the Ancient Mortise and Tenon and use the Duplex Joist Hanger.

GIVES DOUBLE THE STRENGTH,

—AND—

SAVES MONEY, TIME AND LABOR.

Only 7 sizes used to fit any sized Joists. Write for prices and information.

Duplex Hanger Co.,

23-25 Water St., Cleveland, Ohio.

The Giant Lock Co.,

The best meeting Rail Sash Lock on the market.

Write us for Prices.

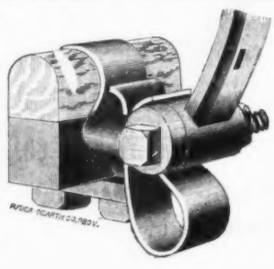
We Undersell them all.

23-25 WATER STREET, - - CLEVELAND O.

THE THILL COUPLING SPRING

MADE BY THE

SABIN MACHINE COMPANY, Montpelier, Vt.



Is unquestionably the **BEST METAL SPRING** made for the purpose of preventing the rattling of the Thills.

It is adapted to any coupling where rubbers are used. It does its work perfectly, and is so formed as not to wear the iron of the coupling, as it presents a flat, smooth surface to the bearing, and yet holds the shaft perfectly in place, and prevents all rattling.

It Outlasts many sets of rubbers and costs but a trifle more. It is easily adjusted. Made in four sizes, ⅞, 1, 1⅛ and 1¼ inch. Packed one dozen pairs in a box.

Send for Sample Dozen or Larger Quantities to

SABIN MACHINE CO., Montpelier, Vt.

READING HARDWARE CO.

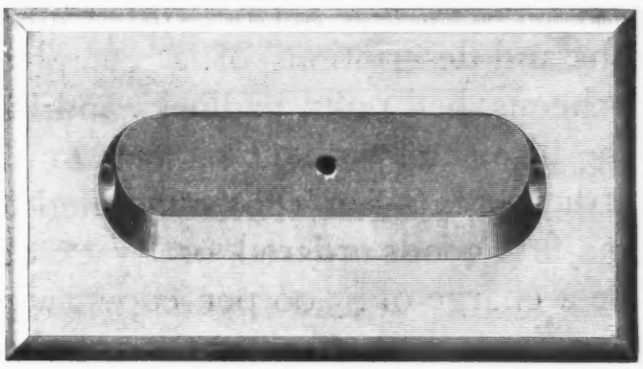
MANUFACTURERS OF

Fine Builders' Hardware.

ALL STYLES OF FINISHES:

RUST-PROOF IRON.

Antique Copper,
Natural Copper,
Mottled Copper,
Dark Steel,
&c., &c.



Antique Brass,
Natural Brass,
Gold Bronze,
Oxidized Silver,
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FLUSH SASH LIFT No. 1329. PLAIN BRONZE.

Factories and Principal Office at **READING, PA.**

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IS THE BEST BOSOM IRONING BOARD ON THE MARKET AND IS NOW READY FOR DELIVERY. SEND FOR CIRCULARS.

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THE WILLIAMS PRINTING CO.,

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ESTIMATES FURNISHED FOR ALL CLASSES OF WORK,

96, 98, 100 & 102 READE STREET, - - NEW YORK.

THE NORWICH LOCK MFG. CO.,

OF ROANOKE, VA.

Roanoke Va., March 1, 1892.

Our new catalogue and price-list is now ready for distribution. It is a book of 404 pages, $10\frac{1}{2}$ x $12\frac{1}{2}$, printed on heavy paper, and contains illustrations and descriptions of a complete line of locks, knobs, keys, escutcheons, bell pulls, padlocks and builders' hardware.

A copy will be furnished without charge to any house whose purchases from us during the year 1891 amounted to $100 net, and will be sent with the first goods ordered, or by express, not prepaid. To others we make a charge of $5.00 per copy, which amount will be deducted from account as soon as same amounts to $50.00 net. The book is too large to be sent by mail.

THE NORWICH LOCK MFG. CO.,

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Dangler Electric Torches

FOR GASOLINE OR OIL

14 JETS OF LIGHT

3 to 6 INCHES LONG.

FOR lighting manufacturing establishments, such as Rolling Mills, Foundries, Machine Shops, Engine Rooms, &c., &c., with a convenient, portable, brilliant, steady light, and by cheaper means than by Coal Gas.

SOLE MANUFACTURERS,

The Dangler Stove & Mfg. Co.,

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LARGE SIZE FOR OFFICE USE.

6x9½ Inches, 500 Pages.

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THE BURNER, as well as the furnace body, is **convertible**, producing a **noiseless, powerful** flame for **tinners'** use —which will heat a three-pound copper from cold to a point where it can be used for soldering **in two minutes**. By simply pulling a slide it is converted into a **blast furnace** for **plumbers'** use and forging purposes, and produces an **intensely hot**, blue flame, which will melt ten pounds of Babbitt Metal in **five minutes**. Is the **only** furnace made with **asbestos point protectors**, and that **will not** burn tinning off the Coppers. The Burner is protected by a hood—will stand a **strong wind**, and can be used on roofs of buildings. The Reservoir is made of **brass**, nickel trimmed. The parts are **malleable iron**. Is absolutely non-explosive; cannot be filled while burning. Weight, 8 lbs. Height, 13 in.

We also make a furnace for **plumbers'** use only, sold at a lower price.

Manufactured by

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ROPE AND BINDER TWINE.

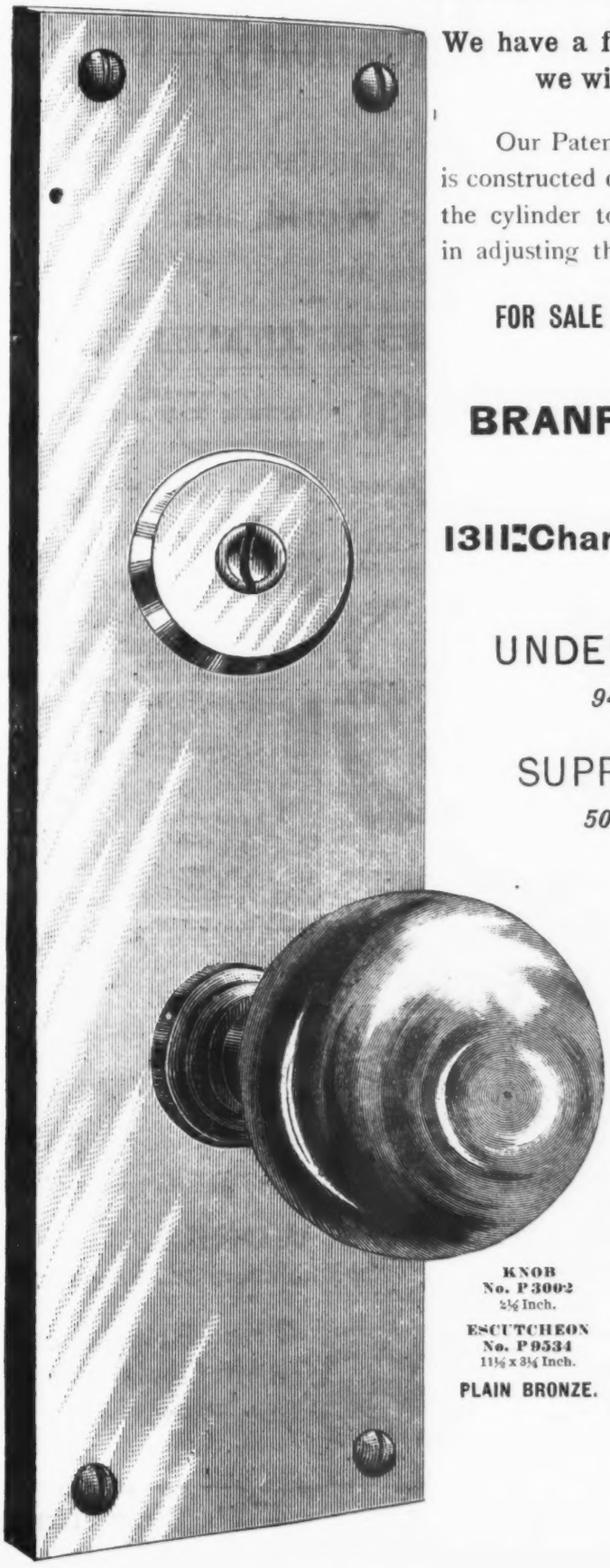
46 South Street, New York.

"Branford's" New Cylinder Front Door Lock,

MANUFACTURED BY THE

Branford Lock Works, Branford, Conn., U. S. A

ESTABLISHED IN 1862.



KNOB
No. P 3002
2½ Inch.

ESCUTCHEON
No. P 9534
11½ x 3¼ Inch.

PLAIN BRONZE.

We have a full line of Cylinder Work, for which we will quote prices on application.

Our Patented CYLINDER is a new departure, as it is constructed on an entirely new principle, viz.: Attaching the cylinder to the Escutcheon. This insures simplicity in adjusting the lock to the door.

FOR SALE BY THE HARDWARE TRADE GENERALLY.

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We have nearly completed patterns for Classical Designs of Builders' Hardware in

ROMANESQUE,
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and shall soon be able to fill orders for the same. Inquiries are solicited from Architects and Dealers in Art Hardware.

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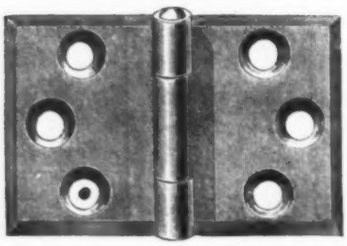

We are the largest manufacturers of these goods in the **World.** and there are

"NONE BETTER."

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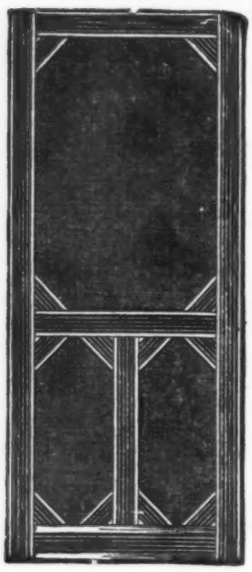

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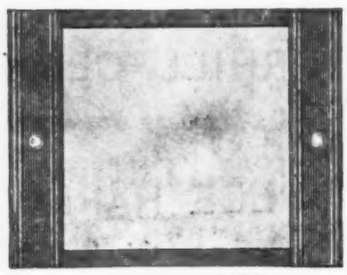
EVERYBODY knows our "QUEEN ANNE" and "EUREKA" SCREENS. We have a new one, "THE LEADER," a Spring Screen, with a Metallic Slide.

The Newest and Best Thing Out.

"EUREKA."



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New Goods and New Prices.

Sticks and Corners FOR DOORS & WINDOWS.

SEND FOR CIRCULAR.

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113 Chambers Street, New York.

Our New Spring Screen,

"THE LEADER."

Front.

PATENTED JUNE 17, 1890.

Back

Cheapest in the World

BECAUSE THE BEST.

The Best is always the Cheapest.

Stanley's Steel Butts & Hinges.

If you deal in Hardware or use Hardware, you want them. Big catalogue free on application.

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The Bridgeport Chain Co.'s Triumph Chain, made into Halters, Traces, Cow Ties, Tie-outs, Kennel Chains, &c.; also cut to lengths for manufacturers' use.

The cut represents the exact size of 6/0

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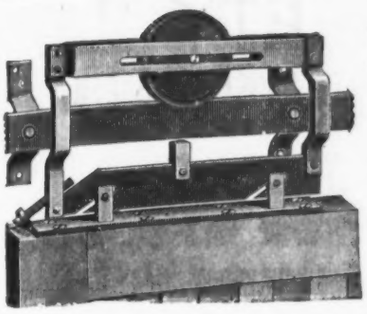
LANE'S PATENT NOISELESS STEEL



PARLOR DOOR HANGER.

This Hanger is made of Steel.
The Wheel is also Steel, except the filling or tread.
The Track is of Steel—a single one only.
The Hanger is Anti-Friction.
More nearly Noiseless than any other.
Ease of adjustment.

Can be erected with half the labor others require.
Track will not swell, shrink or warp out of true.
No cutting of doors.
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Simplicity in all its parts.
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ALSO LANE BARN DOOR HANGER AND TRACK. SEND FOR CIRCULARS.

Manufactured by

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HAVE YOU HAD OUR PRICES?

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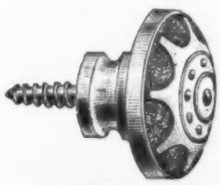
Lock Mfg. Co., Kenton, O.

LOCKS.

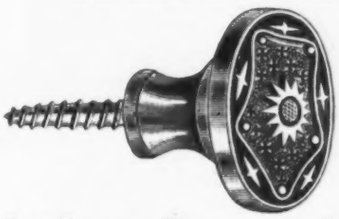
Lock Mfg. Co., Kenton, O.

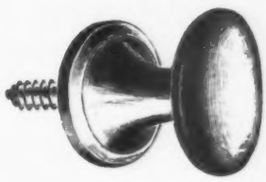
We make a full line of Shutter Knobs



—AND—

Builders' Hardware,





In Iron, Brass and Bronze and any style of Finish.

THE CLAFLEN MANUFACTURING CO.,

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W. H. DIFFENBACHER, 154 Lake Street, Chicago, Agent.

PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes; ¼ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

AMES SWORD CO., Chicopee, Mass.

Send for Price Lists and Circulars.

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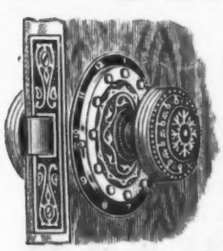

ARE NECESSARY ON YOUR

SAFES AND VAULTS,

WHY NOT PROTECT YOUR

HOUSE DOORS

and all other places containing valuables with Combination Locks?

We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

THE CANTON COMBINATION LOCK CO., - CANTON, O.

KEYSTONE LOCK WORKS,

—Established 1879.—

E. T. FRAIM, Lancaster, Pa., U. S. A.

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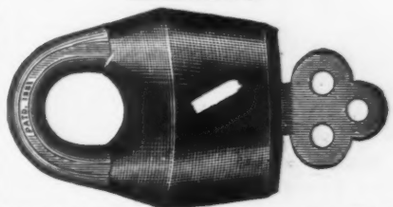

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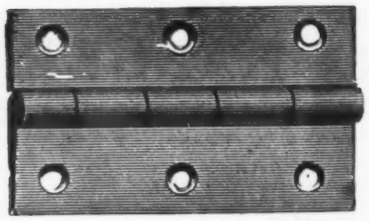

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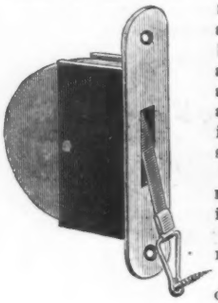

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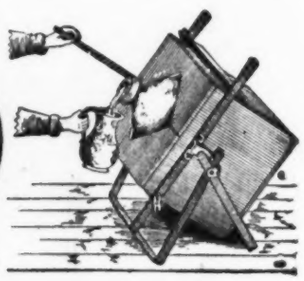

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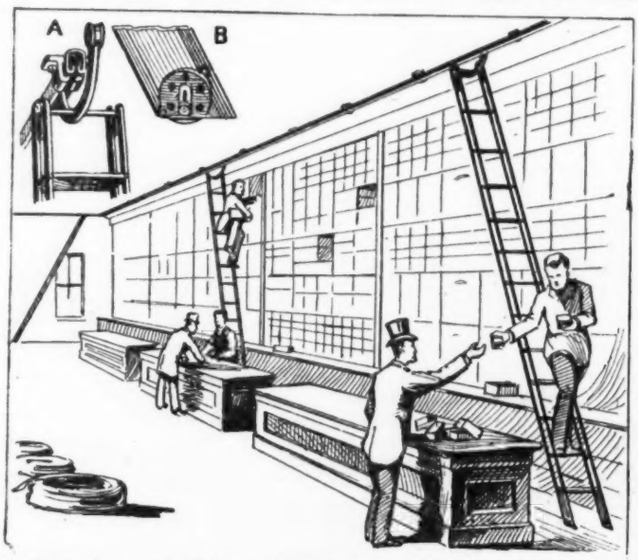

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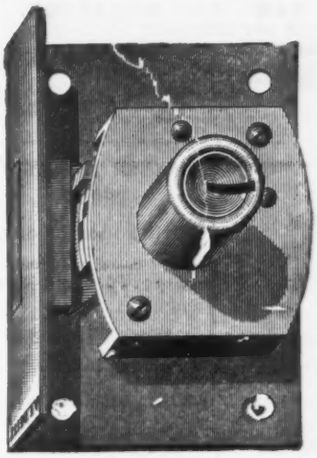

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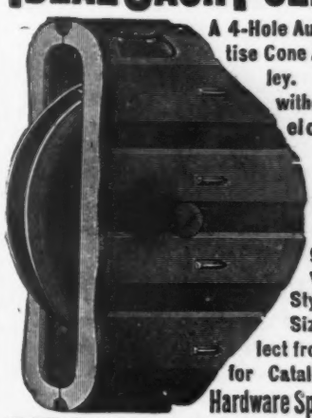

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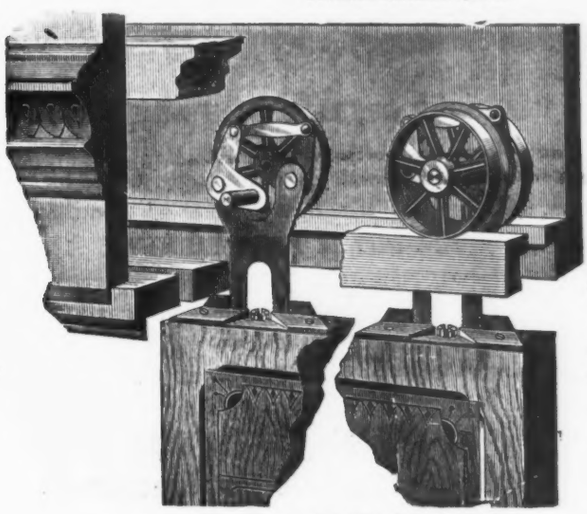

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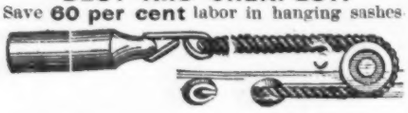

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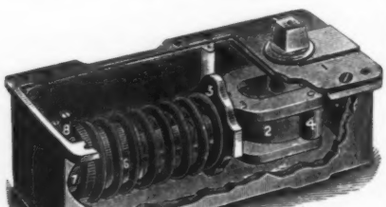

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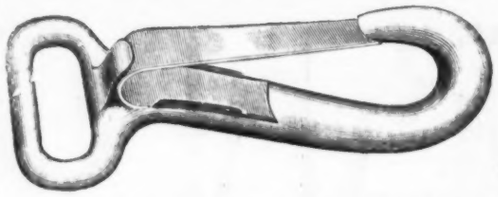

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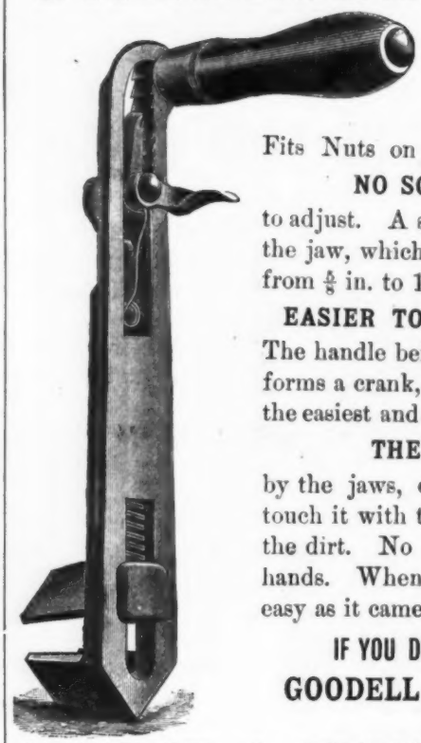

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The handle being at right angles with the body forms a crank, allowing the nut to be turned off in the easiest and most natural manner with one hand.

THE NUT IS HELD FIRMLY

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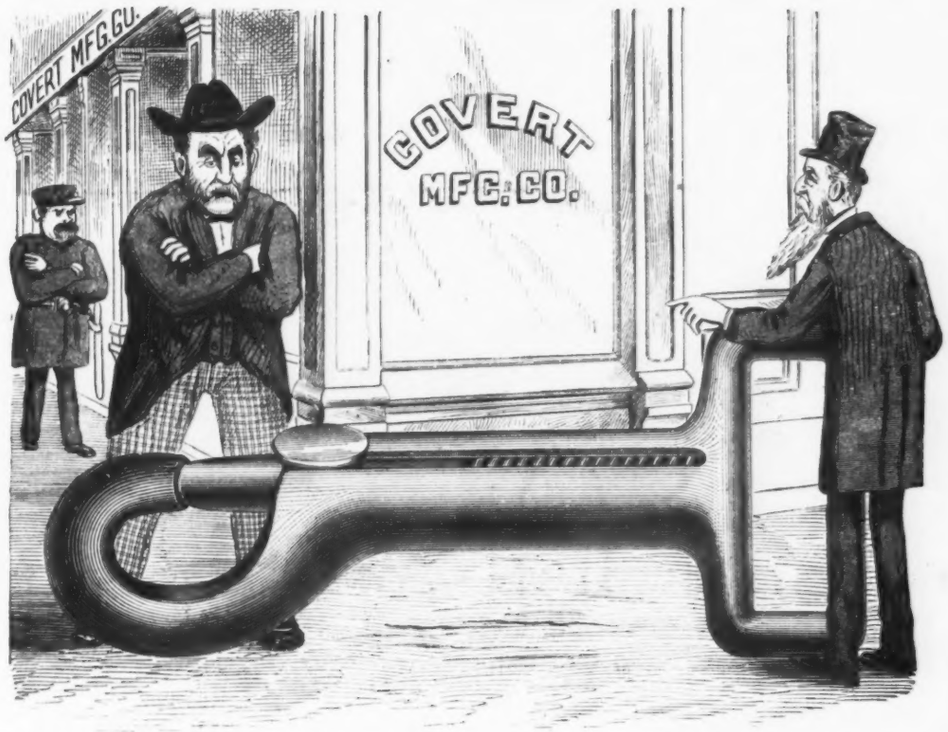

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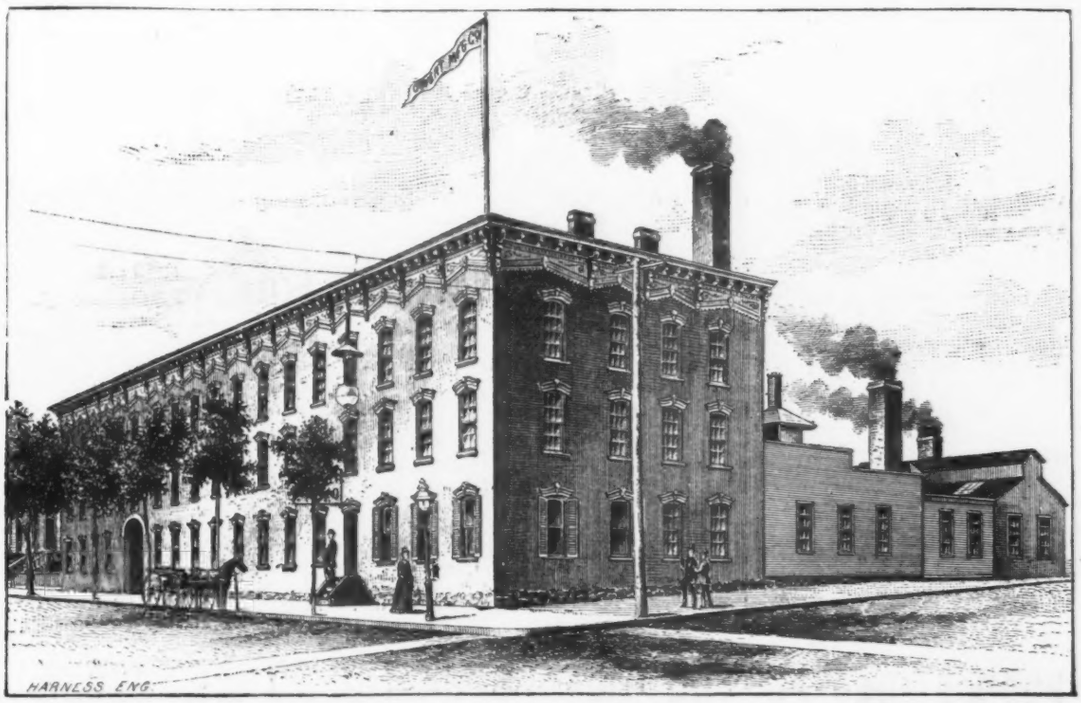

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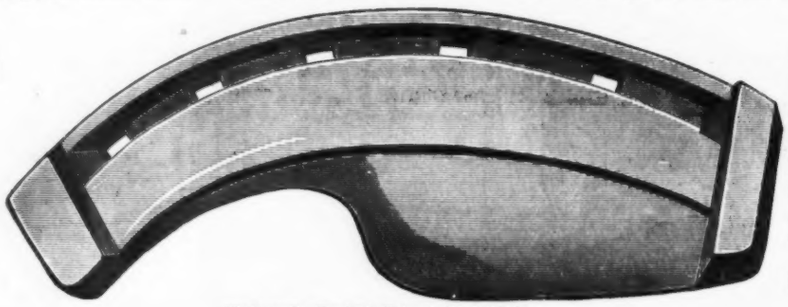

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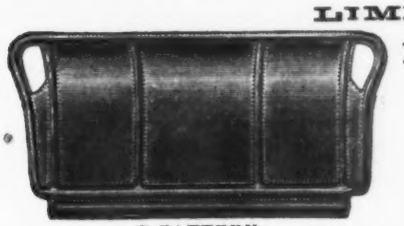

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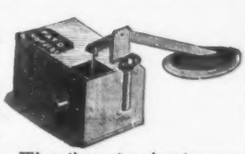

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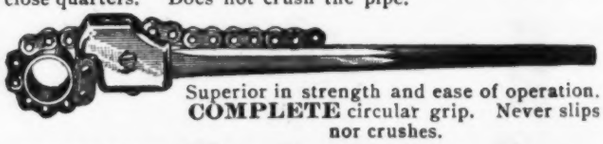

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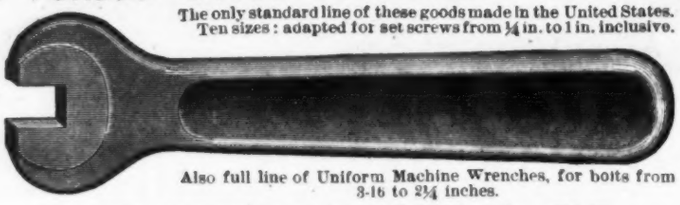

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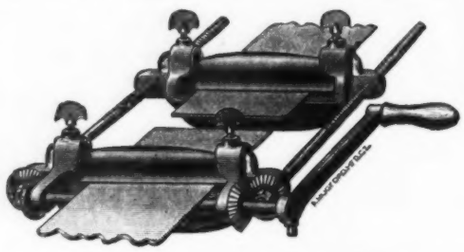

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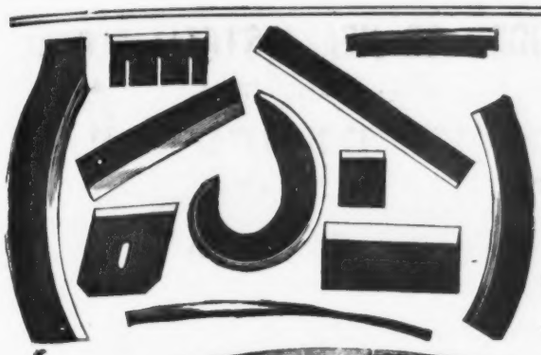

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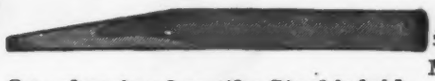

End view of Plated Stock for Dies, Lawn Mower Knives, Blades &c., showing how the Steel is laid.

THE IMPROVED ACME STEEL WRENCH

PATENTED.

CAPITOL MFG. CO.,

Cable Address: "CAPITOL, CHICAGO."

125 to 137 REES STREET,

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Awarded Prize Medal at Paris Exposition and Jamaica Exposition.

HERCULES. Combination Pipe, Bolt and Nut Wrench. Bright Finish

ACME Standard Bright Finish.

The Hercules Screw Driver and Tack Claw (Patented).

This Screw Driver is made from one piece of special cast steel, in all sizes, from 1½ in. to 12 in. The blade is well polished, carefully tempered, and every screw driver is subjected to a severe test and warranted. Handles Japanned with the best quality baking Japan.

The Strongest and Most Durable Wrench and Screw Driver Made.

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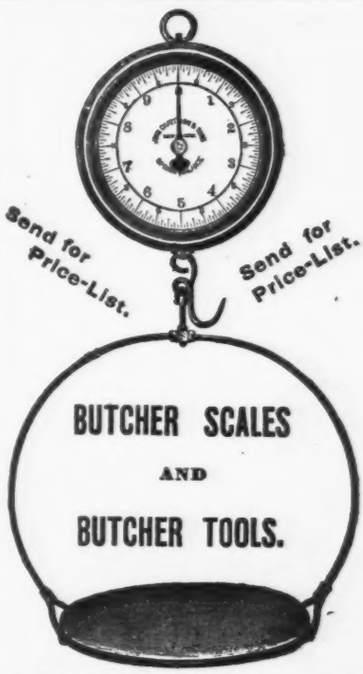

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Genuine Improved

KNIFE HANDLE

PATENT

Screw Wrenches

MANUFACTURED BY

COES WRENCH CO.,

WORCESTER MASS.

Established in 1830.

Patented July 6, 1860.

Registered March 31, 1874.

Patented July 8, 1884.

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position

☞ Straight Bar, Extra Long Nut for Screw in Jaw. ☜

The BEST MADE and STRONGEST WRENCH in the MARKET

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Is the only Adjustable Grass Catcher on the market and accommodates itself to any Mower.

ATTRACTIVE, DURABLE, CHEAP.

It is Light (Weight One Pound)

DONT BE MISLED BY CHEAP IMITATIONS.

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SCREW, KEROSENE SIZE.

Hammer's Adjustable Clamps.
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NEW pattern Heavy Screw Clamps strongest in the Market.
For sale by all the principal Hardware Dealers.
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An appliance to be attached to a tackle block for holding the load at any desired height. Grips the rope but does not injure it. Applicable to any style of block and easily attached. The lightest and cheapest on the market and perfectly sure. If your hardware dealer does not keep it send to us and we will deliver it.
Blocks furnished equipped with grips if desired.
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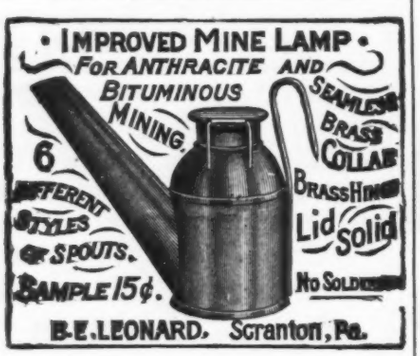

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The Cleveland Block Co.
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—ARE THE—
Strongest, Lightest, and most Durable Blocks made.

Note the superior strength gained by the encircling outside strap, with bolts and steel pin passing through both plates and straps. Edges rounded to protect the rope.

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With Steel Screws. U. S. Standard and the points hardened.

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6	1	70		18	4½	2 75	
7	1¼	80		19	5	3 25	
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One small set of 8, by ¼ in. to 2 in.... 6 25
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The most Effective, Reliable and Perfect Wrench in the market.
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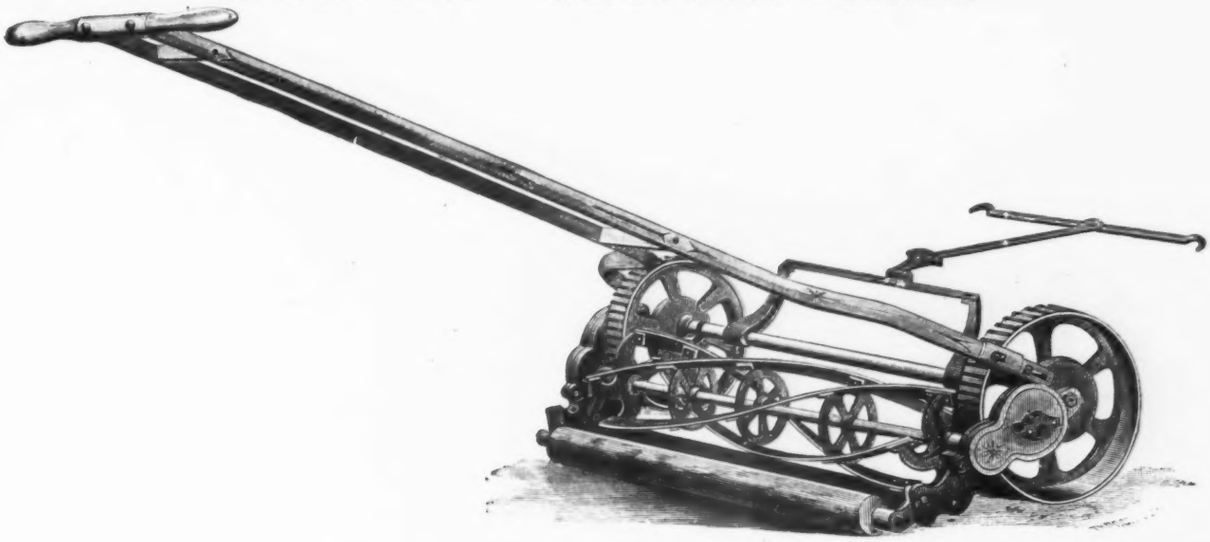
NEW PONY MOWER

25-INCH CUT. WEIGHT 110 POUNDS.



Can be used with pony and boy to guide, or one man to pull and boy to guide. An excellent mower. Nothing like it in the market.

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HORSE LAWN MOWER

We have retained all the desirable features of our Horse Mower as formerly made, with many valuable improvements.

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Side draft. Height of cut perfectly adjusted by one motion.

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"Model," "Standard," "High Wheel."

Throwing over the front lever will raise the knives so as to run over gravel walks or roads. Composition metal bushings.

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Improved Clutch Gear.

IT IS THE BEST.

25, 30, 35 and 40 inch cut.

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"NEW MODEL."

"NEW MODEL."—High Wheel.

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We are the oldest and most extensive manufacturers of LAWN MOWERS in America.

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Every Lawn Mower we manufacture is FULLY WARRANTED.

IT WILL PAY YOU TO SEND TO US FOR DESCRIPTIVE CIRCULARS AND TRADE DISCOUNTS, BEFORE PLACING YOUR ORDERS FOR LAWN MOWERS FOR THE COMING SEASON.

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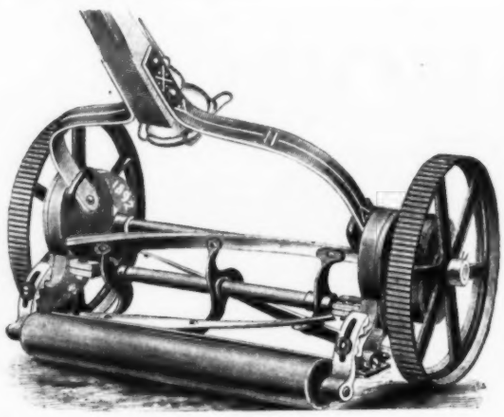

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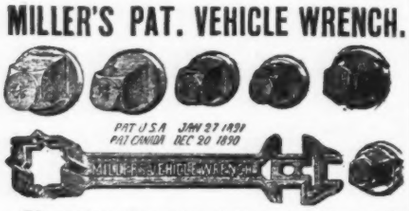

Three sizes (Nos. 1, 2 and 3), each fitting eight different sized nuts—4 square, 2 hexagon, 2 octagon—total capacity of three sizes ranging from ⅛ inch to 2 inches.

Manifest advantages over all other vehicle wrenches — Best air furnace malleable iron, smoothly cast, neatly japanned.

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Is well made, has many points of superiority over others, yet avoiding their defects. Compactness, durability, lightness of draft, clean cutting and ease of operation are its principal features.

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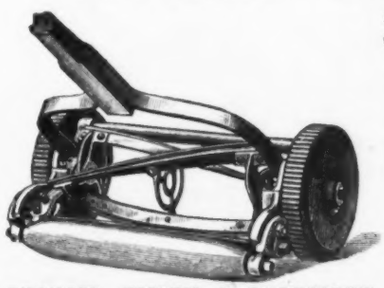

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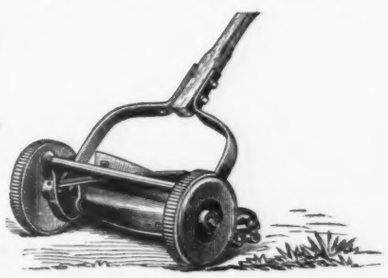

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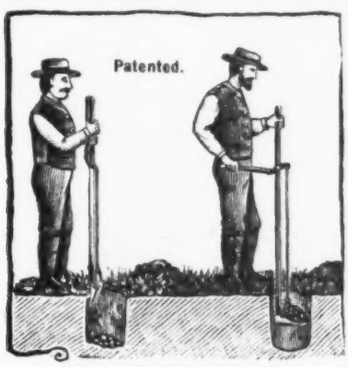

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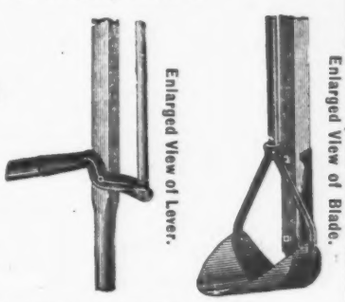
Best Made.



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The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made.

Ladders are not *Suspended*, but *Supported* from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit.

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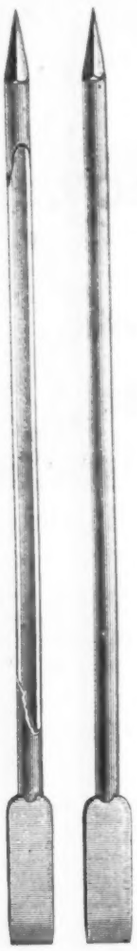
All Standard Sizes, Regular or Odd, to Order.

In 200 lb. Kegs or Card Board boxes, convenient for JOBBERS.

Shimer's Patent Hollow Handled Post Hole Digger.



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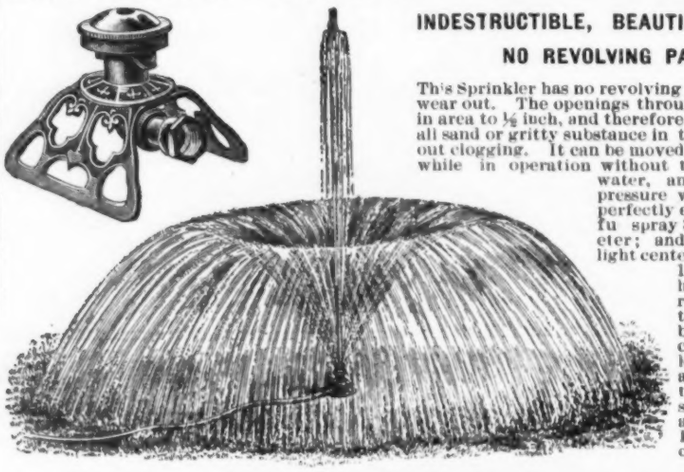
INDESTRUCTIBLE, BEAUTIFUL, CHEAP.

NO REVOLVING PARTS.



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WITH INTERCHANGEABLE PLATES.

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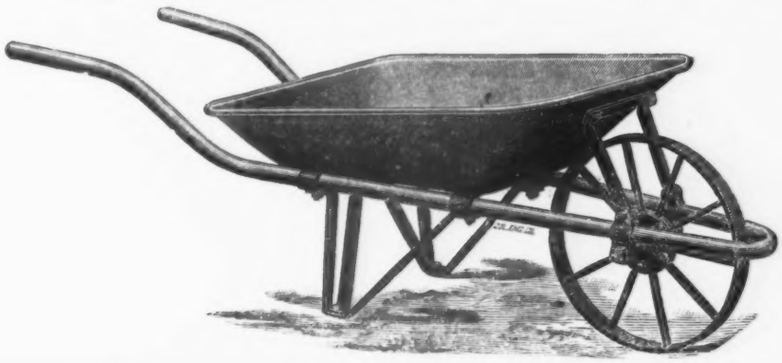

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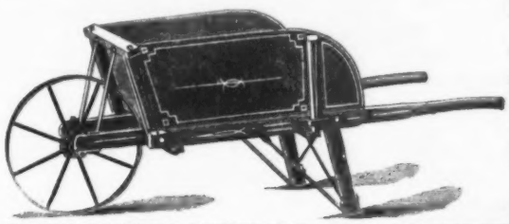
manufacture a line of Wheelbarrows and Scrapers unequaled for their features of excellence and merit. A trial order is solicited. Our goods are substantial, well built; in fact, made to last. As for price, write us; we assure you the latter will be satisfactory.



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Moral: Insure in — a clear conscience by handling only the Genuine "Old Original Hill" Hog Rings

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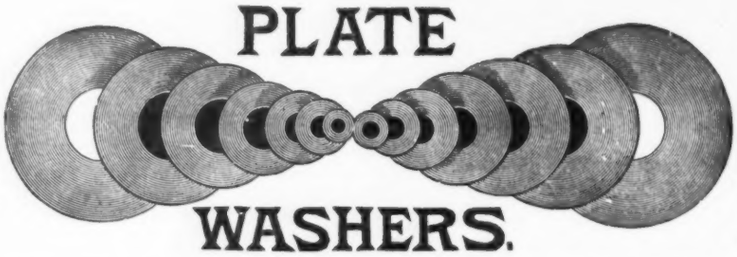

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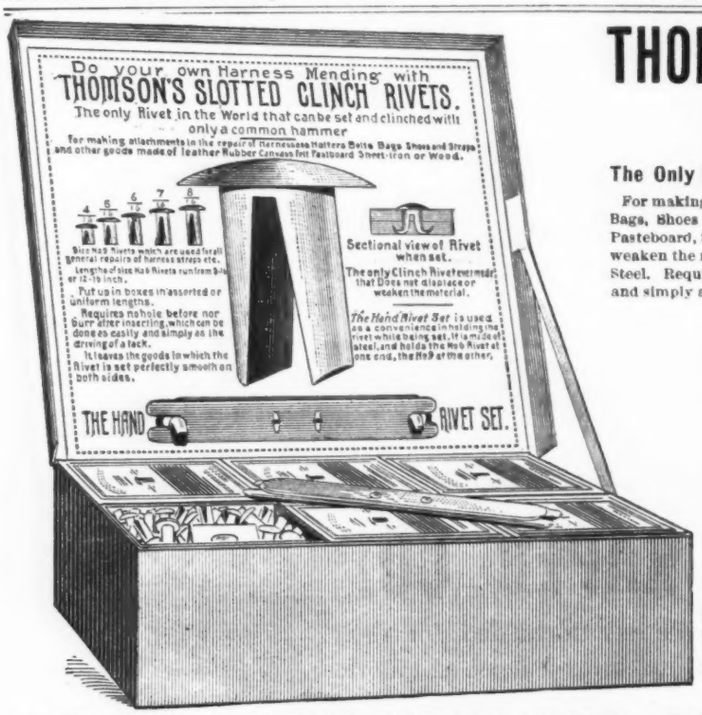

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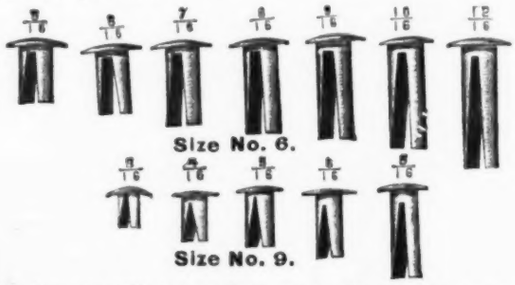

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SAVES TIME LABOR Temper, Backaches, and Profanity. Ask your hardware dealer for the EXCELSIOR and take no other, or write

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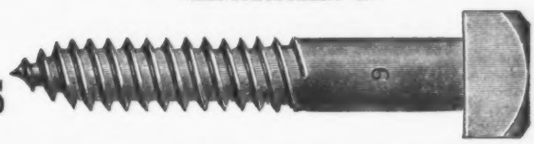

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SUITABLE FOR MACHINERY OF ALL KINDS.

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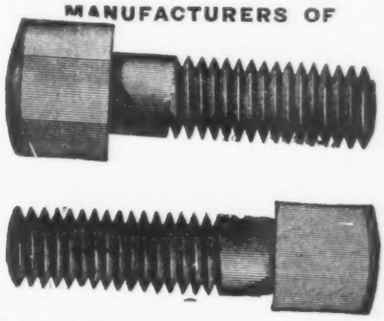

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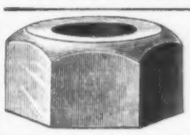

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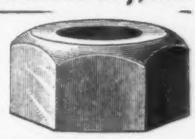

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Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Colnau, Victor, Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.
Smith, Geo. L., Syracuse, N. Y.

Gas Machines.
Kemp, Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Mill'g Mch Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. . & Co., Gloucester, Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Chicago Spring Butt Co., Chicago, Ill.
Coburn Trolley Track Mfg Co, Holyoke, Mass.
Granam, Jno. H. & Co., 113 Chambers St., New York.
Lane Bros., Poughkeepsie, N. Y.
Munger-Colton Mfg. Co., Chicago, Ill.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Graham, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplee, Dunn & Alder, 97 Chambers St., N. Y.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven Conn.
Cleveland Fdy. Co., Cleveland, O.
Eldredge Hdw. Mf. Co., Plainsville, Conn.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, W. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Wire Goods Co., Worcester, Mass
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.
Missouri Mal. Iron Co., St. Louis, Mo.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hog Rings and Ringers.
Hill, Hugh W. & Co., Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Mavis Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y.
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co, Sidney, O

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St, N. Y
Packer, C. W., Philadelphia, Pa.
Shepard Hdw. Co. Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. H. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr. & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Walbaum, W. H. & Co., Philadelphia.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cuniffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 410 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm st N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St N.Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Naylor & Co., 45 Wall st., N.Y.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O

Jail Hangers.
Duplex Hanger Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg Co., Attleboro, Mass.

Ladies.
Detroit Fdy. Equipment Co., Detroit. Mich.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Graham, Emlen & Passmore, Phila, Pa
Heiney, H. C., Richmond, Ind.
Lane, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N. Y.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Gibbs Mfg. Co., Canton, O.

Lawn Sprinklers.
Etue & Benger Mfg. Co, St. Louis, Mo.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport. Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath l, Mass.

Locks & Knobs. *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Canton Combina ion Lock Co., Canton, Ohio.
Clarion Mfg. Co., Cleveland, O.
Delta, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co, Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H., Lockport N. H.
Blanchard & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin & Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., 327 & 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E. Son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Mackinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pitkin, A. B. Mchry. Co., Providence,
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, A. B., St. Louis, Mo.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valuiere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Branford, Conn.
Dingee, J. H., Philadelphia, Pa.
Dodd, F. S. C., Chicago.
Norfolk & Western R. R.
N. Y., L. E. & W. R. R.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrsam, Gustave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 108 Reade, N. Y.

Nickel.
Am. Fradleg Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 337 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

(See Alphabetical Index, Page 114.)

Selbert Cylinder Oil Cup o., Boston. Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston. Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Philadelphia, Pa.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila., & Wash'gton.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Peanut Roasters and Warmers.
Mas acn, R. J. 80 Vesey St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann. Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Mauie, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlan Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Æna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Gibbs Mfg. Co., Canton, O.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Cleveland Hdw. Co., Cleveland, Ohio.
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. n. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Electric Cutlery Co., 21 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristol's Mfg. Co., Waterbury, Conn.

Refrigerators.
Grand Rapids Refrigerator Co., Grand Rapids, Mich.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron F'dry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel,
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron & Steel Roofing Co., Cleveland, Ohio.
Johns, H. W Mfg Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O,

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Ferris, W. M., St. Louis, Mo.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Hasler, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Duplex Hanger Co., Cleveland, O
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Simonds Mfg Co, Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros. Testing Mch. Co., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hdw. Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia. Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—*Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Belleville Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henly, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. B. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel,
Springfield Iron Co., Springfield, Ill.

Spool Wire,
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Cary, Alanson, 240-242 W. 29th St., N. Y.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 104 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N.Y.
Chicago Spring Butt Co., Chicago, Ill.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 108 Chambers, N. Y.
Van Wagoner & Williams Co., 92 Beekman, N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co, Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co., Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutsman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill.
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.
Tack Hammers.
Richardson, J. C. & Co., Ridgway, Pa.
Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. R., Whitman, Mass.
Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
Testing Machines.
Riehle Bros. Testing Mch. Co., Philadelphia.
Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.
Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.
Fire Cement.
Am. Trading Co., 182 Front, st., N. Y.
Toe Calks, Steel.
Burke, P. F., Boston, Mass.
Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co. New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.
Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.
Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.
Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Standard Lighting Co., Cleveland, O
Transom Lifters.
Wollensak, J. F., Chicago, Ill.
Tricycles.
Fay Mfg. Co., Elyria, O.
Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tube Scrapers.
Johns, H. W. Mfg. Co., 87 Maiden Lane
Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa
Randolph & Clowes, Waterbury, Conn.
Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.
Tumbling Barrels.
Henderson Bros., Waterbury, Conn.
Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.
Twist Drills. *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.
Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mf'g Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.
Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.
Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 23 Dey, N. Y.
Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg.Co., Farmer Village, N.Y.
Washers.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.
Washing Machines.
Rocker Washer Co., Ft. Wayne, Ind.
Water Purifiers.
Am. Fluoride Co., 261 Liberty, N. Y.
Bradley & Co., Syracuse, N. Y.
Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.
Weaners.
Kees, F. D., Beatrice, Neb.
Well Boring Machines.
Oil Well supply Co., Pittsburgh, Pa.
Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.
White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass
Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Mill r & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Wire Cutters.
King, J. M. & Co., Watertown, N. Y.
Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.
Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.
Wire Fences.—*See Fencing, Iron and Wire.*
Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.
Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.
Wire Nail and Tack Machines
Eckstein, Chas G & Co., 41 John N. Y
Wire Nails.
Amer. Wire Nail Co., Anderson, Ind
Baackes Wire Nail Co., Cleveland, O,
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Klimer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill,
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City
Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.
Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
Wrenches, *Manufacturers of.*
American Saw Co. Trenton, N. J.
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
Miller, Jno A., St. Louis, Mo.
Rhode Island Tool Co., Providence, R.I.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.
Wringers.
Colby Wringe Co., Montpelier, Vt.
Zinc.
Edes, Edw. L., Plymouth, Mass.

(See Alphabetical Index, Page 114.)

THE IRON AGE STANDARD HARDWARE LISTS

FOR USE IN PRICE BOOKS.

Compiled by R. R. WILLIAMS, Hardware Editor of The Iron Age.

PRICE 25 CENTS.

This pamphlet contains the principal standard Hardware price-lists in as clear and compact an arrangement as possible, so as to permit their being advantageously cut out and inserted in the price book. In order to make them adapted to this use they are printed on thin and tough paper of fine quality and on only one side of the paper.

Saucepans and Round Boilers.

	Plain.	Turned.	Tin'd or En'd.
Pints.			
1	$0.30	.35	.39
1½	.32	.37	.44
2	.35	.39	.48
3	.42	.47	.56
Quarts.			
2	.50	.56	.63
2½	.53	.59	.68
3	.55	.62	.73
4	.60	.68	.84
5	.65	.75	.96
6	.70	.81	1.11
7	.75	.84	1.21
Gallons.			
2	.85	.96	1.31
2½	1.05	1.18	1.56
3	1.20	1.35	1.70

The success of the effort to give the lists in small space is illustrated in many of the lists, in which a clear and condensed arrangement is secured. For instance, the wrench list occupies but 3 inches by ¼ inch, while the list of Stove Hollow Ware, in very small space, gives the list prices on a large and important line of goods which often occupy several pages in catalogues. In several lists, such as Strap and T Hinges and Butts, a new arrangement is adopted, which is regarded as presenting these lists in a very convenient as well as condensed form.

As is obvious from the lists herewith reproduced, the shape and size of the different lists varies greatly, the aim being to give each list the smallest and most convenient arrangement possible. None of the lists are, however, more than 3½ x 6 inches in size, very few of them being as large as this and most of them very much smaller. In use it is intended that they shall be trimmed closely before they are inserted in price books, when they may be attached either by one edge close to the hinge of the book, as will, perhaps, be most convenient with the larger lists, permitting the use of the entire page for memoranda, or the smaller lists may be pasted on the page in connection with the entries in regard to discounts, freights, &c. Many of the lists are so compact in arrangement as when thus inserted to leave ample room for recording quotations.

Stove Hollow Ware. Ground and Unground.

POTS, KETTLES, ETC. (CAST IRON.)

No.....	6	7	8	9	10	11
Pots.....	$0.65	.75	.85	1.00	1.25	1.75
Kettles.....	.55	.65	.70	.85	1.00	1.40
T Kettles.....	.75	.80	.90	1.00	1.25	....
Spiders.....	.27	.30	.35	.40	.50	.60
Griddles Round	.22	.25	.27	.30	....	....
" Long..	.40	.50	.60	.75	....	....

SCOTCH AND YANKEE BOWLS.

No.....	1	2	3	4	5	6
Scotch Bowls..	$0.35	.40	.45	.50	.60	.70
Yankee Bowls.	.35	.45	.55	.65	.75	.90

Wrenches. Standard List.

Inches.	6	8	10	12	15	18	21
Black...	$9.00	$10.00	$12.00	$14.00	$24.00	$30.00	$36.00
Bright..	10.00	11.00	14.00	16.00	26.00	32.00	38.00

Some merchants use this pamphlet for reference, checking off invoices, etc., as it gives the leading lists in a more convenient form than they can otherwise be obtained. The lists are, however, intended primarily to be cut out and inserted in price books, and *can be used in connection with any of The Iron Age Hardware Price Books.*

Glue Pots. Tinned or Enameled

No. 4/0....	$4.50	No. 2	$8.40
3/0....	5.00	3	10.26
2/0....	5.50	4	12.42
0	6.00	5	14.58
1	6.75	6.	16.94

That the Standard Hardware Price Lists meet a want of the trade is evident from the fact that a new edition is already called for.

EVERY HARDWAREMAN SHOULD HAVE A COPY. Price 25 cts.

SENT, POSTPAID, ON RECEIPT OF PRICE BY

DAVID WILLIAMS, Publisher, 96-102 Reade St., New York.

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Ætna Iron & Steel Co..... 20
Aiken, Henry..... 29
Akron Spirit Level Co.... 72
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Alexander Bros.....39
Allentown Rolling Mills.. 18
Almond, T. R..... 5
American Bolt Co..... 109
American Cutlery Co..... 78
American Fluoride Co.... 35
American Metal Co..... 3
American Pig Iron & Storage Warrant Co..... 20
American Pin Co..... 4
American Saw Co.....102
American Screw Co..... 14
American Spiral Spring Co..... 6
American Tool Works 51&59
American Trading Co .. 5
American Wire Nail Co.. 12
Ames Sword Co..... 1&93
Ansonia Brass & Copper Co..... 2
Arcade Malleable Iron Co. 30
Armstrong Mfg. Co 49
Aschman Steel Casting Co.25
Ashley, J. A..... 6
Ashton Valve Co..... 37
Atkins, E. C. & Co..... 74
Atlantic White Lead & Linseed Oil Co..... 26
Atlas Tack Corporation.. 11
Auburn Mfg. Co..... 67
Audubon Mch. Works... 63
Auld & Conger..... 15
Ausable Horse Nail Co.... 69
Avery Stamping Co 28
Baackes Wire Nail Co 12
Babcock & Wilcox Co.... 37
Backus Mfg. Co..... 75
Baeder, Adamson & Co... 70
Bardsley, J..... 94
Barnes, W. F. & John..... 38
Barnett, G. & H..... 76
Barnett, Oscar 66
Barnum, E. I 9
Beaman & Smith..... 44
Beaudry Tool Co..... 44
Belden Mch. Co 47
Bellaire Nail Works..... 13
Bell, Edwin & Sons Co. 77
Belleville Steel Co..... 1
Bement, Miles & Co..... 47
Bemis & Call Hdw. & Tool Co..... 100
Berlin Iron Bridge Co.... 16
Berryman, Jas..... 35
Bethlehem Iron Co..... 82
Bevin Bros. Mfg. Co..... 83
Bickford, H 55
Bicycle Step Ladder Co 105
Bidwell, Geo. R. Cycle Co. 83
Bigelow, C. R..... 61
Bignall & Keeler Mfg. Co. 40
Billings & Spencer Co.... 100
Binghamon Wire Goods Co..... 12
Binns' Patent Band Co .. 96
Birmingham Iron Fdry. 25
Blair Mfg. Co 104
Blake & Johnson..... 12
Bliss Co., E. W..... 41
Bloomsburg Brass & Copper Co..... 8
Boardman, L. & Son...77, 8, 87
Boker, Hermann & Co .. 9
Boone, W. C. Mfg. Co.... 32
Boonton Iron & Steel Co. 18
Booth, The Lloyd Co..... 29
Borden & Lovell..... 9
Borgner, Cyrus..... 28
Boston & Lockport Block Co.192
Bostwick Metal Lath Co.. 15
Bowman, Albert B 57
Box, Alfred & Co..... 54
Boynton & Plummer..... 44
Braddock Wire Co..... 13
Bradlee & Co..... 17
Bradley & Co..... 115
Branford Lock Works.. 91
Brass Goods Mfg. Co..... 2
Bremer, I..... 83
Bridgeport Chain Co.... 82
Bridgeport Gun Implement Co. 52
Bridgeport Mch. Tool Wks49
Briggs, Marvin..... 61
Bristol Mfg. Co..... 2
Britton, Horace E..... 79
Britton, J. Blodgett..... 27
Broderick & Bascom..... 6
Bronson Supply Co..... 87
Brooks, M. S. & Sons..... 9
Brown, E. E. & Co..... 95
Brown & Patterson..... 47
Brown, R. H. & Co..... 70
Brown & Sharpe Mfg. Co. 58
Bryden Horse Shoe Co.... 98
Buck Bros 79
Buckeye Engine Co..... 36
Buffalo Forge Co.....6 & 116
Buffalo Scale Co..... 100
Buffalo Steam Pump Co... 38
Bullock Bellows Co..... 21
Bullock, C. K..... 45
Burden Iron Co 98
Burke, P. F..... 99
Burgess Soldering Furnace Co..... 54
Burr & Houston Co..... 25
Bussenius & Cunliffe..... 61
Butcher, W. S 80
Butterfield & Co..... 51
Byram & Co..... 30
Caldwell Mfg. Co..... 94
California Wire Works.. 5
Cambria Iron Co..... 21
Cambridge Iron & Steel Co 25
Cambridge Roofing Co... 15
Campbell & Zell Co 30
Canfield, H. O 51
Canton Comb Lock Co.. 53
Canton Saw Co..... 76
Canton Steel Roofing Co. 10
Capital Mfg. Co.....101
Carbutt, John..... 83
Carlin's Sons, Thomas.... 59
Carnegie, Phipps & Co.... 21
Cary, Alanson..... 1
Cascon, Wm. R. & Co..... 92
Celluloid Zapon Co..... 10
Central Oil Gas Stove Co.. 1
Chadborne & Coldwell Mfg. Co..... 104
Chambers Bros. Co.....107
Champion Blower & Forge Co. 45
Champion Iron Co..... 9
Champion Safety Lock Co..... 82
Chandler & Taylor Co ... 37
Chapman Mfg. Co..... 116
Chapman Valve Mfg. Co.. 35
Chase, Geo. 56
Chatillon, John & Sons...101
Chelsea File Works..... 76
Cheney, S. & Son..... 28
Chess Bros. 25
Chester Steel Casting Co.. 26
Chicago Foundry Co..... 27
Chicago Foundry Supply Co 32
Chicago Spring Butt Co... 86
Chillicothe Mfg. Co..... 89
Chrome Steel Works..... 21
Church & Sleight ..... .109
Cincinnati Corrugating Co 15
Clanen Mfg. Co..... 93
Clancy, J. R 94
Clapp, Geo. M 61
Clark, H. P..... .107
Cleveland Block Co..... 102
Cleveland City Forge & Iron Co 1
Cleveland Foundry Co.... 84
Cleveland Hardware Co.. 45
Cleveland Novelty Co.... 101
Cleveland Rubber Co.... 85
Cleveland Stone Co..... 56
Cleveland Twist Drill Co. 52
Cleveland & Hardwick... 36
Clinton Wire Cloth Co.... 8
Cobb & Drew 15
Coburn Trolley Track Co. 94
Cochennour & Wilson.... 83
Coes, Loring & Co 101
Coes Wrench Co..... 101
Coffin & Leighton..... 49
Colburn, A. L..... 51
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Continental Iron Works Co. 36
Continental Wire Co 7
Corbett, Newton 57
Corning, Edw. & Co 17
Coulter & McKenzie Mch. Co 44
Coventry Machine Co..... 69
Covert Mfg. Co..... 97
Covert, E. Mfg. Co 98
Cowles Electric Smelting & Aluminum Co 4
Cox, Justice, Jr., & Co.... 23
Cramp, B. H. & Co..... 3
Crescent Steel Co..... 22
Cresson, Geo. V..... 51
Crosby, G. A. & Co..... 45
Crown Smelting Co..... 3
Cruikshank, D. B..... 60
Cumberland Nail & Iron Co..... 18
Curtis Gram 31
Cutter & Wood..... 56
Dallett, Thos. H..... 52
Dane, Stoddard & Kendall 8
Dangler Stove & Mfg. Co.. 90
Darby, Edw. & Sons.... 8
Davis-Colby Ore Roaster Co 18
Davis I. B. & Son..... 25
Davis, W. P..... 60
Davol, John & Sons..... 2
Dean Bros. Steam Pump Works 38
Dean Whiting Elevator Co 102
De Forest, H. L..... 29
Delta, A. E..... 95
Deming Co..... 22
Detroit Foundry Equipment Co..... 33
de Valliere, H..... 79
Diamond Mch. Co..... 56
Diamond State Iron Co .. 88
Dieffenbacher, W. H 99
Dienelt & Eisenhardt..... 44
Dingee, J. H..... 67
Disston, Henry & Sons 75
Dixon, Jos., Crucible Co. 39
Dodd, A. W. & Co..... 81
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Downer, W. A..... 32
Doscher, Martin..... 9
Douglas, W. & B..... 72
Dudgeon, Richard..... 49
Dunbar Bros..... 6
Dunham Nut Mch. Co.... 48
Duplex Ranger Co 88
Dwight Slate Machine Co. 49
Eagle Anvil Works..... 80
Eagle Bicycle Mfg. Co.....110
Eames, H. W Co 73
Eastwood Wire Mfg. Co 10
Eaton, Geo. H. & Co..... 44
Eckstein, Chas. G. & Co.. 10
Eddy Electric Mfg. Co.... 33
Eddy, Mfg. Co..... 59
Edes, Edw. L..... 3
Edge Moor Iron Co..... 28
Egan Co..... 48
Ehrhardt, Gustave & Son. 11
Electric Cutlery Co..... 80
Elizabethport Cordage Co 90
Enterprise Mfg. Co..... 86
Esherick, Cotton & Co.... 18
Estey, W. S..... 9
Ette & Henger Mfg Co.. 106
Etting, Edw. J.....18a, 28
Eureka Cast Steel Co.... 116
F. & S. Mfg. Co..... 104
Fairmount Machine Co.... 55
Fallows, Jas. & Son..... 81
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Fearing, Wm. S 2
Ferdinand, L. W. & Co.... 74
Ferris, W. M..... 79
Field, Alfred & Co..... 78
Field Force Pump Co 72
Field-Lange Wire & Metal Co 9
Fitch, W. & E. T..... 115
Fitzsimons & Co..... 20
Flagg, Stanley G. & Co. 118
Flanders, W. T. & Co..... 66
Foos Mfg. Co 49
Fraim, E. T..... 93
Frankford Steel Co..... 29
Frick, H. C. Coke Co..... 1
Friedenwald Bros 36
Frost Thill Spring Co.... 96
Fuller Bros. & Co..... 23
Fulton Iron & Engine Works..... 54
Gardner, Jas. & Sons..... 28
Garrison, A. Foundry Co. 25
Garry Iron & Steel Roofing Co..... 15
Gaston, Weston & Ladd.. 57
Gautier Steel Dept., C. 1, 15 & 18
Gaynor & Mitchell Mfg. Co..... 96
Gibbs Mfg. Co.....105
Gilbert & Bennett Mfg. Co 8
Globe Co..... 96
Glockler, B..... 76
Gooch, C. J 6
Goodell Co..... 96
Goubert Mfg. Co..... 37
Gould & Eberhardt..... 45
Goulds Mfg. Co 68
Graham, Emlen & Pass more 105
Graham Twist Drill & Chuck Co..... 52
Graham, John H. & Co.... 8
Grand Rapids Refrigerator Co 88
Green, A. H..... 78
Greene, Tweed & Co..... 33
Hackney Hammer Co 47
Haight & Clark..... 27
Haley Mfg. Co 6
Hair & Naumann..... 3
Halsey, Jas. T..... 51
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Harrington, E., son & Co. 54
Harrington & King Perforating Co..... 10
Harris urg Foundry & Machine Works 29
Hart, Henry C. Mfg. Co... 73
Hart Mfg. Co 51
Hartford Steam Boiler Inspection and Insurance Co..... 84
Harvey & Graham 1
Hartman Mfg. Co..... 12
Haskell, Wm. H. Co.... 109
Hatch & Holmes Mfg. Co. 77
Haydock & Bissell..... 63
Hazard Mfg. Co 6
Heads Iron Foundry..... 30
Henderson Bros..... 30
Hendey Mach. Co..... 68
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Henley, M. C..... 83&105
Henn, A. S. & Co..... 98
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Hildebrand & Wolf..... 94
Hill, Clarke & Co.. 42, 43 & 60
Hill, H. W. & Co.....107
Hobson, Francis, Seaman & Co. 19
Hoffman, J. W. & Co.... 18
Hogan, John L. & Co..... 18
Hoggson & Pettis Mfg. Co. 50
Holland Mfg Co..... 71
Holmes, Booth & Hayden. 2
Holmes & Edwards Silver Co. 81
Holt, Hiram & Co.....109
Horton & Son Co., E..... 50
Hotchkiss, E. S..... 88
Howard Iron Works.....100
Howard & Morse..... 7
Howson & Howson..... 6
Hulbert Bros. & Co..... 115
Hunt, Robert W. & Co.. 37
Huron Grindstone Co.... 57
Ideal Mfg Co 84
Illinois Fluor-Spar & Lead Co 65
Illinois Iron & Bolt Co.... 48
Illinois Steel Co 20
Indiana Wire Fence Co.. 9
Iowa Barb Wire Co..... 6
Ives, H. & G. Co..... 95
Jack Frost Freezer Co.... 68
Jacobus, W. B..... 79
Jarecki Mfg. Co..... 49
Jeffrey Mfg. Co 44
Jenckes, E. Mfg. Co..... 5
Jenkins Bros..... 1
Jenkins & Lingle 45
Jennings, C. B. & Co 116
Jessop, Wm. & Sons 19
Johns, H. W. Mfg. Co..... 11
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Johnson Foundry Co.... 27
Johnson, L. G. & Co.....116
Johnson, Israel H., Jr., & Co..... 49
Jones, B. M. & Co..... 22
Jones, Jesse & Co..... 73
Jones & Lamson Mch. Co. 68
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Judson, B. F..... 21
Jupiter Furnace Co..... 61
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Keeley, Jerome & Co..... 18
Kees, F. D.....109
Kelley, B. & Son..... 37
Kelly, Daniel C 26
Kelly Tool Co., Jesse M..... 37
Kennedy, Julian..... 31
Kent, S. W..... 96
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Kilbourne & Jacobs Mfg. Co..... 107
Kilmer Mfg. Co..... 9
King, J. M. & Co..... 74
Kohler, F. E. & Co..... 77
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Kreischer, B. & Sons..... 28
Krogsrud, W..... 95
Kupferle, J. C..... 10
La Belle Steel Works.... 24
Ladin & Rand Powder Co. 25
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Lamberson, B..... 66
Landers, Frary & Clark.. 80
Lane Bros..... 93
Lanman, E. B.....106
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Lape, W. E 104
Laughlin, Alex. & Co..... 31
Lea, J. Tatnall & Co..... 24
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La Massener C. E. & Co.. 56
Leonard, B. E 102
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Leonard, T. F 102
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Levis, Henry & Co..... 22
Lidgerwood Mfg. Co.....116
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Lloyd, W. J Mfg Co..... 85
Lockhart Iron & Steel Co. 20
Lodge & Davis Mch. Tool Co .... 58&59
Lovell, Tracy & Co..... 99
Lovegrove & Co..... 60
Ludlow-Saylor Wire Co 7
Ludlow Valve Mfg. Co.... 36
Lufkin Rule Co 76
Lukens Iron & Steel Co... 17
Lundberg, Gustaf..... 19
Lunkenheimer Brass Mfg. Co..... 84
McCabe, J. J..... 5
McCaffrey File Co..... 76
McClure & Amsler..... 81
McCoy, Jos. F. & Co..... 1 6
McFarland Wm 5
McGowan, John H. Co 38
McIlvain, Wm. & Sons.. 29
McKay, Jas. & Co..... 14
McKinney Mfg Co 92
McKinnon Dash & Hdw. Co 98
McLean, John..... 3
McNab & Harlin Mfg. Co 36
MacKinnon Mch Co., J. A 60
Mahoning Fdry & Mch. Co. 29
Mahoning Valley Iron Co. 7
Main Belting Co..... 39
Mann, Edwin R. & Co.... 18
Manning, Maxwell & Moore 52
Manville Machine Co., E. 66
Mansfield, H. H..... 62
Maris Mch. Co..... 85
Masbach, R. J..... 71
Mason Regulator Co..... 115
Mast, Foos & Co..... 105
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Maurer, H. & Son..... 28
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Merrill Bros..... 32
Merriman, A. H..... 47
Michigan Emery Wheel Co 57
Miles, F. S..... 13
Miller, James A. & Bro... 15
Miller, Jno. A 104
Miller & Van Winkle .. 4
Millers Falls Co.....70&116
Milne, A. & Co..... 22
Milton Mfg. Co..... 108
Milner & Peck Mfg. Co.... 49
Missouri Mal. Iron Co.....106
Mohr, J. J..... 18
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Monce, S. G..... 71
Montgomery & Co..... 100
Montour Iron & Steel Co 22
Montross, R. W ..... 87&1 8
Moore, Dr. Gideon E..... 68
Moore Mfg. & Fdy Co.....54
Moore & White Co..... 55
Moorhead McCleane Co... 24
Mo daunt, F. S Co..... 63
Morgan Construction Co. 4
Morgan Spring Co..... 6
Morse Twist Drill & Mch. Co..... 52
Morse, Williams & Co.... 55
Morton, Thos. 93
Moseley Iron Bridge & Roof Co 15
Mossberg Mfg. Co..... 87
Munger Cotton Mfg. Co.. 95
Myers & Bros..... 72
National Machine Mfg. Co., 10
National Horse Nail Co.. 99
National Metal Edge Box Co..... 77
National Pipe Bending Co 24
National Screw & Tack Co. 13
Naylor & Co..... 22
Newark Mch. Tool Works 68
New Britain Hdw. Mfg. Co..... 106
New Castle Wire Nail Co. 13
New Doty Mfg. Co..... 66
New Haven Copper Co... 7
New Haven Mfg Co 44
New Haven Wire Mfg. Co. 7
Newton & Shipman..... 12
N. Y. Belting & Packing Co 39
N. Y. Mach. Depot..... 69
N. Y. Mallet & Handle Works..... 86
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Nixon & Lentz Mfg. Co... 29
Norristown Steel Co..... 26
North Bros. Mfg. Co..... 18
Northampton Cutlery Co. 80
Northampton Emery Wheel Co..... 57
Northwest Mail. Iron Co. 26
Norton & Emery Wheel Co. 57
Norton & Jones Mch. Tool Works 39
Norwalk Iron Works Co. 38
Norwich Lock Mfg. Co... 94
Nourse, Fred 116
Novelty Iron Works..... 57
Noyes, B. B & Co..... 84
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Obermayer, S., Foundry Supply Mfg. Co..... 32
Ogden & Wallace 22
Oil Well Supply Co..... 33
Oneida Mfg. Chuck Co... 50
Osborn, G. Edw. & Co.... 34
Ostrander, Fire Brick Co. 28
Ostrander, W. R. & Co.. 72
Oxford Iron & Nail Co.... 13
Packer, C. W..... 69
Page, Newell & Co..... 18
Paine, A. W..... 79
Palmers & De Mooy..... 26
Palmer Hdw. Mfg. Co.. 87
Pancoast & Maule..... 48
Paragon Mfg. Co..... 72
Passaic Rolling Mill Co... 92
Paxson, J. W. & Co..... 32
Peck, A. G. & Co..... 114
Pedrick & Ayer..... 40
Pennsylvania Mch. Co.... 59
Pennsylvania Steel Co... 20
Perfection Sash Balance Co..... 94
Perkins, H. H. Mfg. Co.. 106
Philadelphia Drop Forge Co..... 27
Phila. Engineering Wks.. 32
Phillips, F. R..... 3
Phillips, E. & Sons..... 12
Phillips, Townsend & Co. 12
Phœnix Horse Shoe Co.... 99
Phœnix Iron Co..... 17
Phosphor Bronze Smelting Co..... 8
Pickands, Brown & Co... 20
Pierson & Co..... 27
Pike Mfg. Co..... 77
Pitkin, A. B. Mchry. Co.. 60
Pittsburgh Iron & Steel Engineering Co..... 30
Pittsburgh Mfg. Co..... 45
Pittsburgh Reduction Co. 58
Place, Geo..... 60
Plumb, Fayette R 81
Plume & Atwood Mfg. Co. 2
Plymouth Mills 12
Pollock, W. B. & Co..... 36
Pope Mfg Co..... 69
Port Chester Bolt & Nut Co 109
Pottstown Iron Co..... 21
Pottsville Iron & Steel Co. 17
Powell Planer Co..... 69
Pratt & Letchworth..... 116
Prentice Bros 40
Prentiss Tool & Supply Co 59
Prentiss Vise Co 72
Pullman, J. Wesley..... 11
Putman Sash Balance Co. 94
Q & C Co..... 65
Queen Anne screen Co... 92
Quint, A. D 45
Rand Drill Co..... 33
Randolph & Clowes..... 1
Raymond Lead Co..... 3
Read Wm. & Son..... 115
Reading Hardware Co.... 89
Reeves Iron Co 21
Reeves, Paul S..... 116
Reily, J. W 21
Reliance Wire Wks. Co... 9
Renovo Fire Brick & Clay Co..... 28
Reynolds & Co..... 12
Rhode Island Perkins Horse Shoe Co..... 98
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Richardson, C. F..... 79
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Rogers, Thomas, Mfg. Co 81
Rollins, Jno. G. & Co., Ltd 69
Rome Brass & Copper Works 2
Rosendale Belting & Co.... 40
Rouse, Duryea Cycle Co. 69
Rowland, Wm. & Harvey 116
Russell, Burdsall & Ward 116
Russia Cement Co..... 71
St. Joseph Pump Co..... 73
St Louis Steel Fdy Co... 26
St. Louis Wire Mill Co... 7
Sabin Machine Co..... 88
Salem Fdry. & Mach. Co. 54
Salem Wire Nail Co..... 13
Samson Cordage Works.. 74
Sanderson's Sons, D..... 48
Schreiber & Sons..... 116
Schleicher, Schumm & Co. 35
Scott, Geo. M..... 48
Scoville Mfg. Co..... 2
Scranton Forging Co.... 98
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Seaman, Sheeth & Black.. 25
Sebastian Lathe Co..... 55
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Seneca Falls Mfg. Co.... 55
Sessions Foundry Co.... 26
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Sibley & Ware..... 39
Sickles, Sweet & Lyon.... 79
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Silver Mfg. Co..... 45
Simonds Mfg. Co..... 74
Singer, Nimick & Co.... 24
Slaymaker, Barry & Co.... 93
Smith & Egge Mfg. Co.... 50
Smith, Geo. L..... 79
Smith, H. D. & Co..... 99
Smith, Hill Co 54
Smith J. D. Foundry Supply Co..... 32
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Smythe, S. R. Co., Inc.... 31
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Southern Emery Wheel Co 57
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Southwark Fdry & Mch. Co..... 35
Speidel, J. G..... 55
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Spencer's I. S. Sons..... 27
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Springfield Emery Wheel Mfg. Co..... 56
Springfield Fdry Co..... 54
Springfield Iron Co..... 21
Springfield Steel Casting Co 27
Standard Fdy. & Mfg. Co. 27
Standard Lighting Co.... 90
Standard Steel Casting Co 114
Standard Tool Co ..... 2&77
Stanley Rule & Level Co.115
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Starrett, L. S..... 79
Steam Gauge Lantern Co. 70
Stearns, E. C. & Co..... 68
Stebbins, Charles J 12
Steel Edge Stamping and Retinning Co..... 87
Steel & Iron Improvement Co. 68
Steptoe, J. & Co 61
Sternbergh, J. H & Son.109
Stevens Arms & Tool Co.. 86
Stiles & Parker Press Co. 41
Stocking, E. B..... 6
Storm Mfg. Co..... 88
Stover Mfg. Co..... 95
Stow Flexible Shaft Co.... 52
Stow Mfg. Co..... 52
Stuart & Peterson Co.... 76
Sturtevant, B. F. Co..... 47
Stutaman, J. M..... 20
Supplee Hardware Co....103
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Sweeting Cycle Co..... 83
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Swindell, W. & Bros..... 31
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Taintor Mfg. Co..... 77
Talcott, W. O..... 58
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Thomson, Judson L. Mfg. Co..... 108
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Toledo Block Works ... 102
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Townsend, W. P. & Co.....109
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Trimont Mfg. Co.....100
Tyler Wire Works Co., W. S..... 68
Underhill, Clinch & Co... 82
Union Mfg. Co..... 50
Union Metallic Cartridge Co 1
Universal Radial Drill Co 47
Universal Sad Iron Co... 88
U. S. Graphite Co 32
Valentine, M. D. & Bro.... 28
Valley Pump Works..... 38
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Van Wagoner & Williams Co..... 116
Victor Mfg. Co..... 94
Vilbaum, W. H. & Co.... 18
Wallace, Wm. H. & Co.... 22
Waltham Emery Wheel Co.. 56
Wardlow, S. & C..... 19
Warner Lock Co..... 73
Washburn & Moen Mfg. Co 4
Waterbury Brass Co..... 2
Waterbury Farrel Foundry & Machine Co..... 48
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Welland's, Chas..... 63
Wellman Iron & Steel Co. 17
Wells Bros & Co..... 51
Wells, Heber..... 25
Western File Co., Ltd.... 76
Western Wheel Works.. 82
Westesson, Jos..... 30
Wetherell Bros. & Co. 19&24
Wetherbill, Robt. & Co.... 115
Wheeler, Madden & Clemson Mfg. Co..... 74
White, L. & I. J..... 78
White Mountain Freezer Co 1
White, Scott, A 15
Whitman & Barnes Mfg. Co..... 84
Whitney, A. R. & Co..... 17
Whitney, A. & Sons..... 22
Whiton, D. E. Mch. Co.... 10
Wickes Bros 40
Wickwire Bros..... 9
Wilcox & Howe Co..... 98
Wiley & Russell Mfg. Co.. 51&116
Williams, H. A. Mfg. Co.. 36
Williams, J. H. & Co.....100
Williams Printing Co.... 89
Williamsport Wire Rope Co..... 6
Wilmot & Hobbs Mfg Co. 3, 23&116
Wilson, E. H. & Co..... 18
Wilson, John 78
Wilson, J. Fred..... 107
Winslow, The Sam'l Skate Mfg. Co 82
Wire Goods Co..... 9
Wister, Francis..... 2&28
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Wood, Alan & Co..... 18
Wood, R. D. & Co..... 27&31
Wood, W. Dewees Co..... 24
Woodruff, Walter W. & Sons. 98
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Worcester Machine Screw Co 109
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Wyman & Gordon..... 27
Yale Towne Mfg. Co. 54&71
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Bradley Hammers

2000 IN USE.

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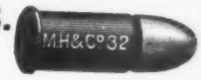

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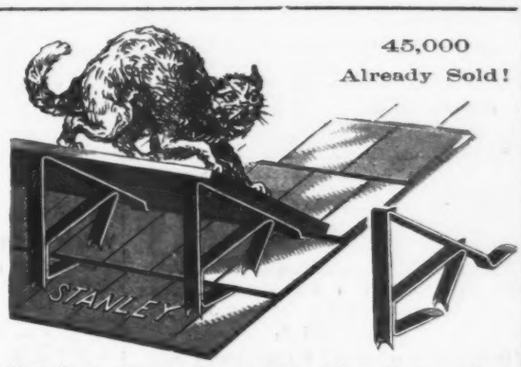

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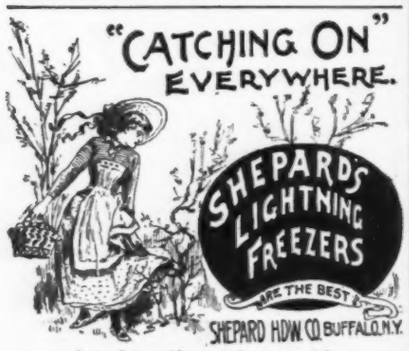

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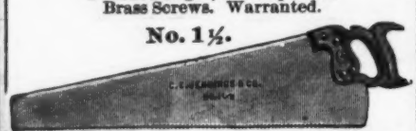

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A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by David Williams, Nos. 96, 98, 100 & 102 Reade St., New York

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Advertising and Subscription Rates " 123

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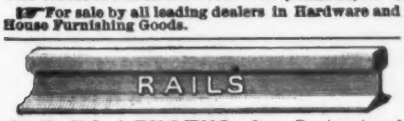

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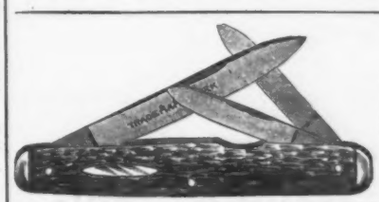

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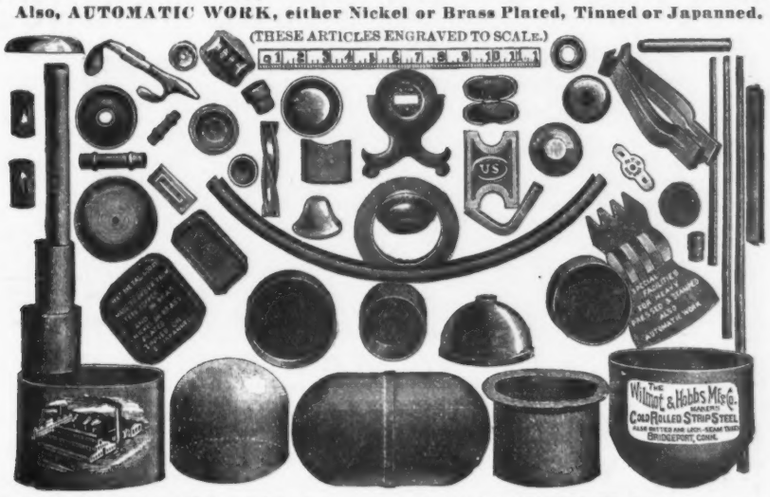

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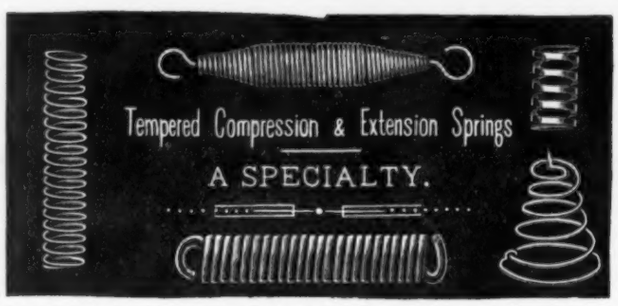

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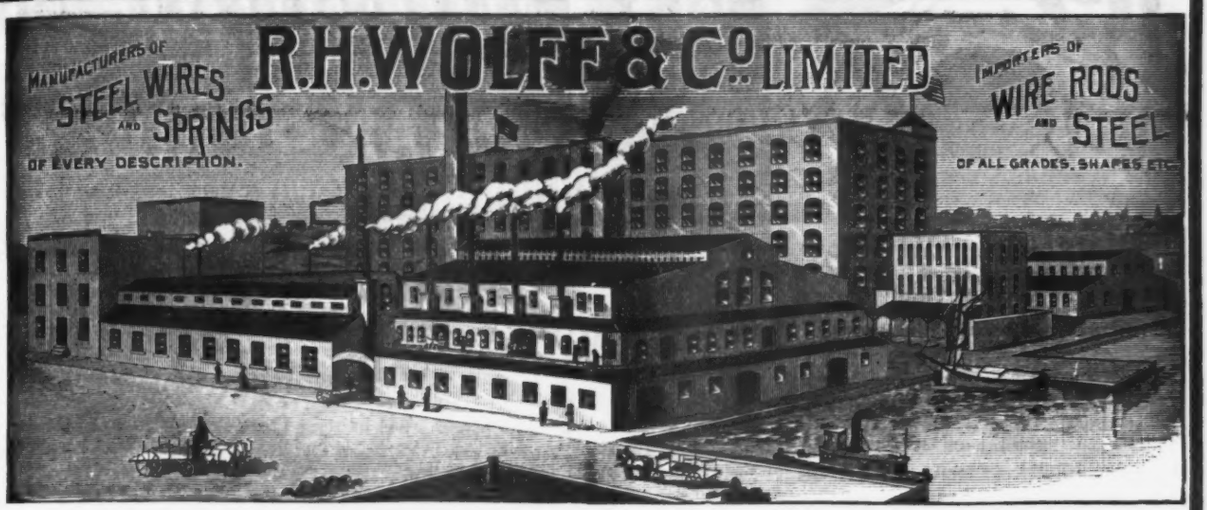

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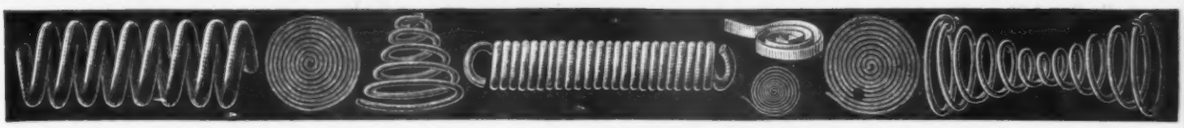

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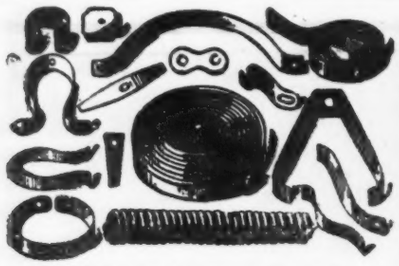

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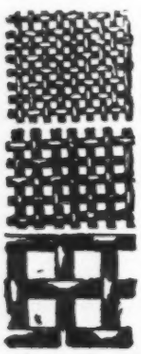

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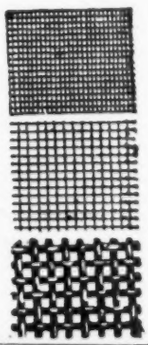

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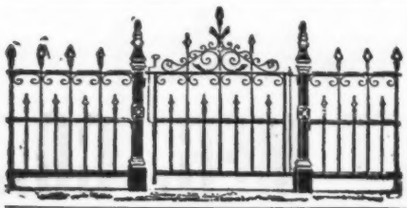

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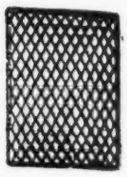

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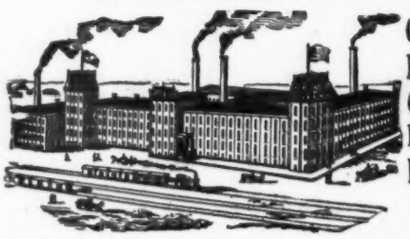

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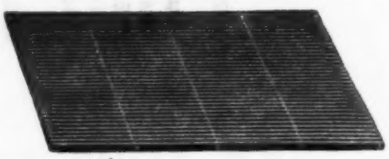

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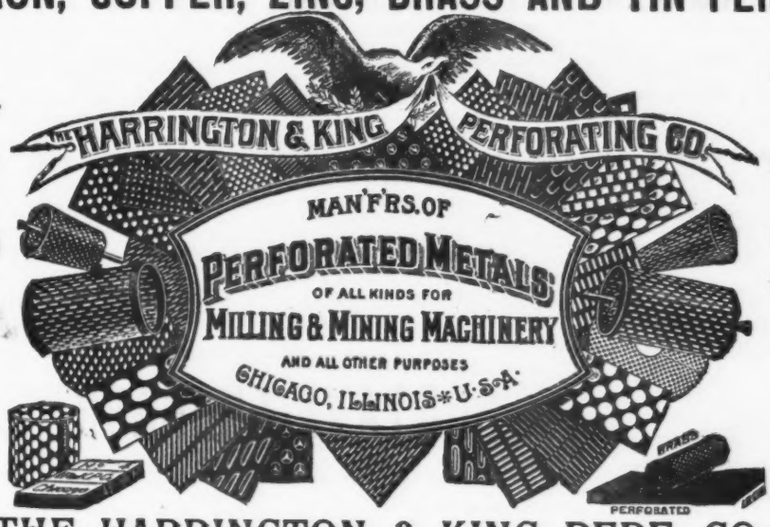

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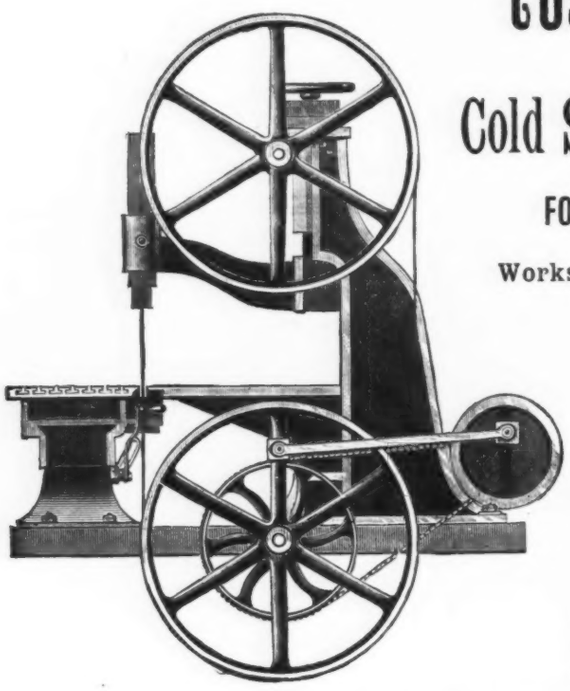

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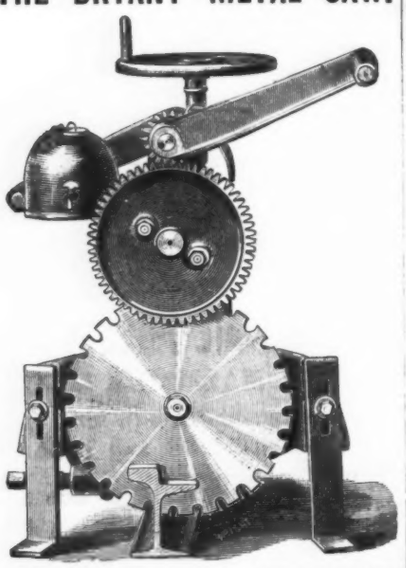

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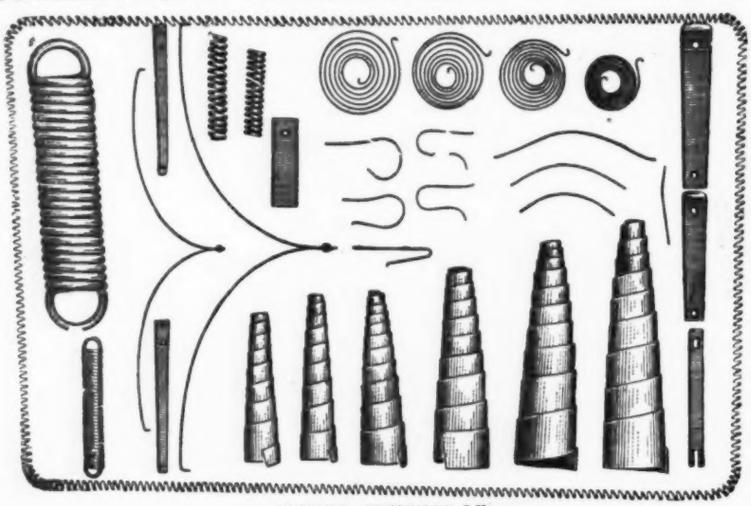

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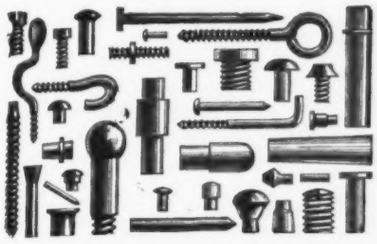

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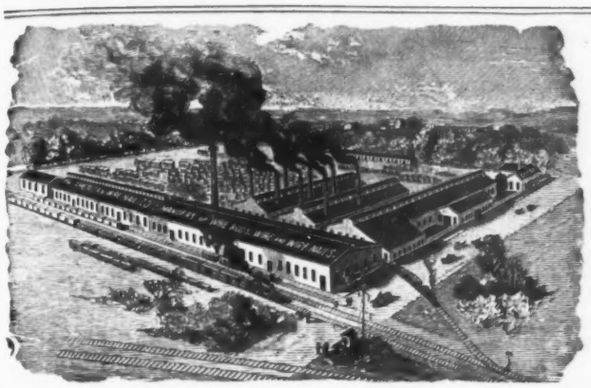

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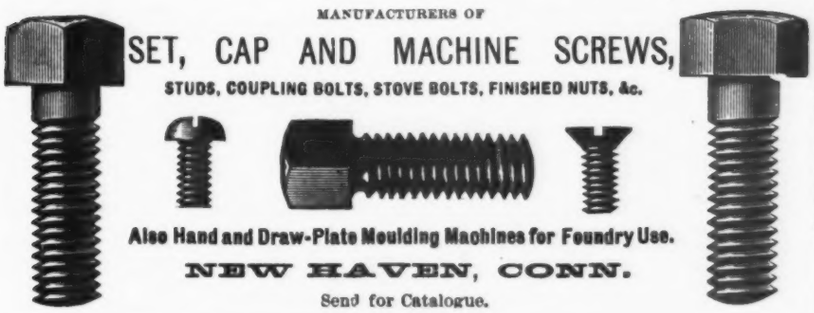

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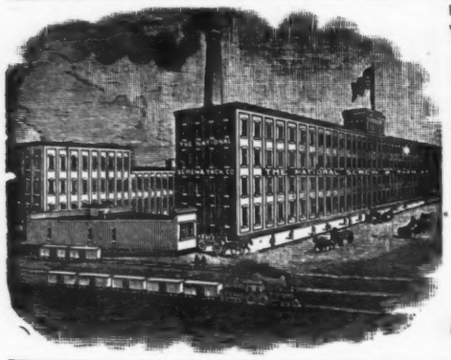

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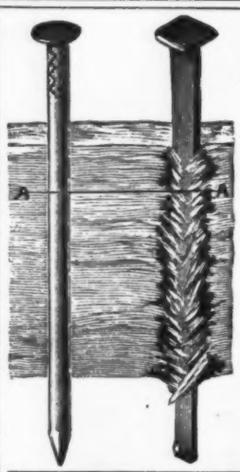

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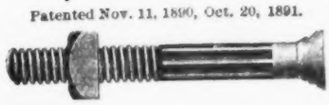
Stronger than a cut screw.
Forged nick.
Requires the use of only one bit.
Inserted easier.
Increased holding power.
Centralized point.
Is cold forged, and entire surface has a metallic skin.

Samples Sent on Application.

Patented Nov. 11, 1890, Oct. 20, 1891.



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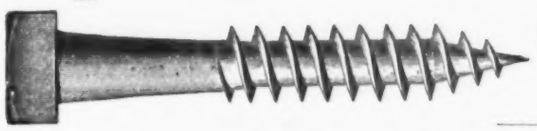

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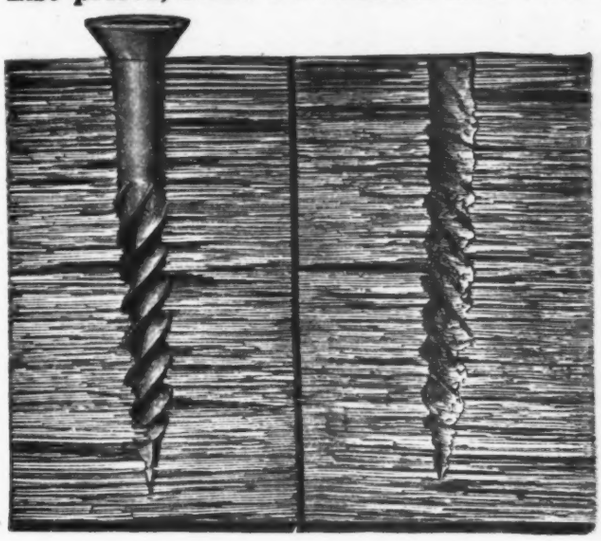
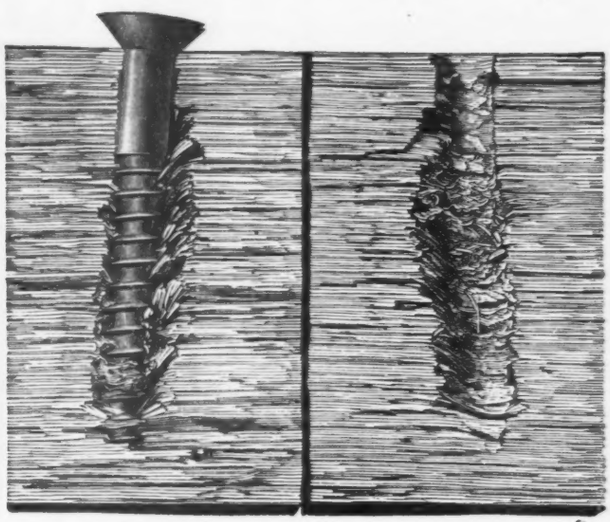


THE "ROGERS DRIVE SCREW,"
Driven with a hammer its entire length.



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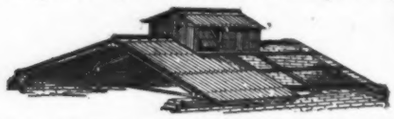

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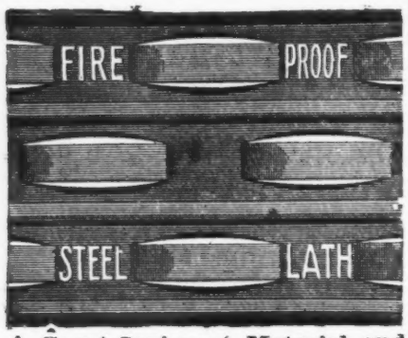

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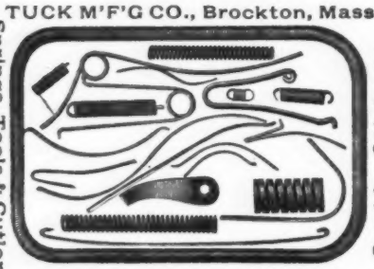

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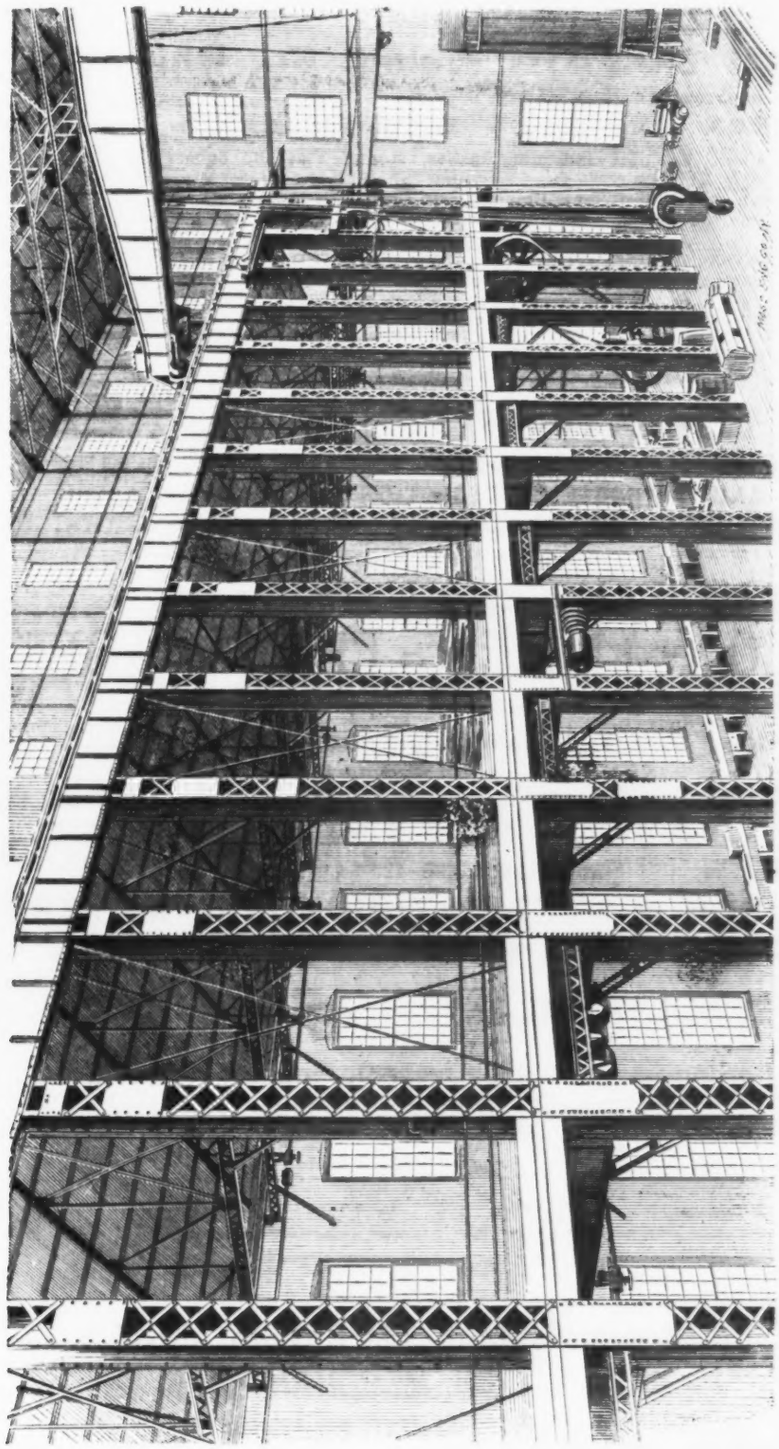

The above illustration is taken direct from a photograph, and shows the construction of an Iron Building designed and built by us for The Newport News Ship Building & Dry Dock Co., at Newport News, Va., and used by them as a Machine Shop. The photograph was taken looking diagonally across the building to show the Traveling Crane and the Gallery floor. The building is 100 ft. in width by 300 ft. in length, the central portion being 50 ft. and the wings 25 ft. in width. The wings are made two stories high The central portion is controlled by a traveling crane, and the wings by jib cranes.

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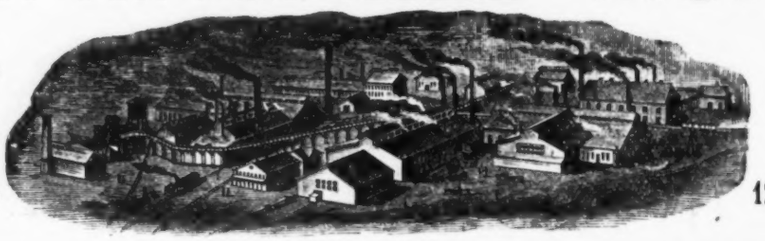

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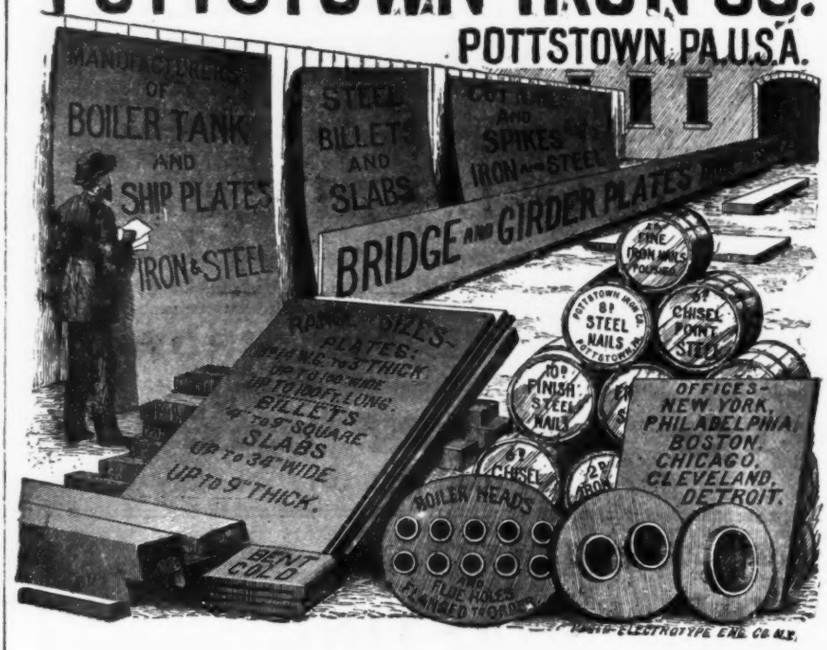

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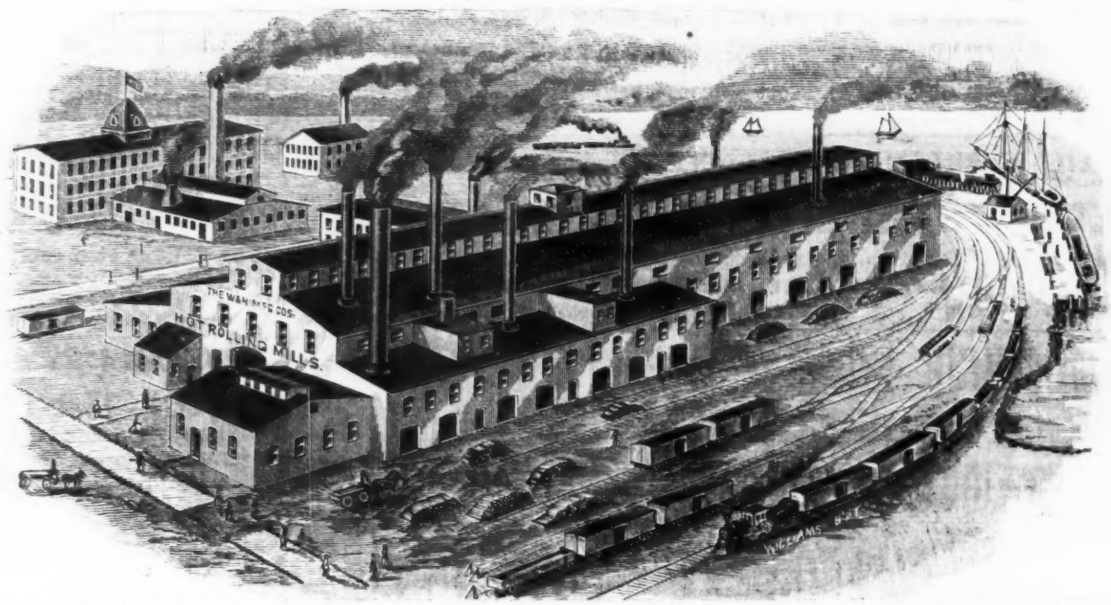

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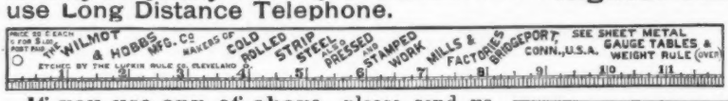

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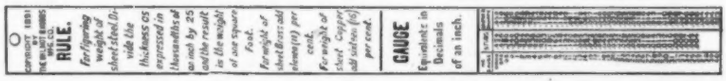

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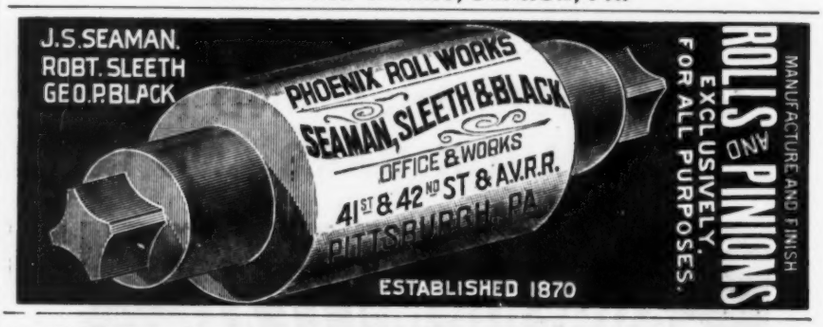

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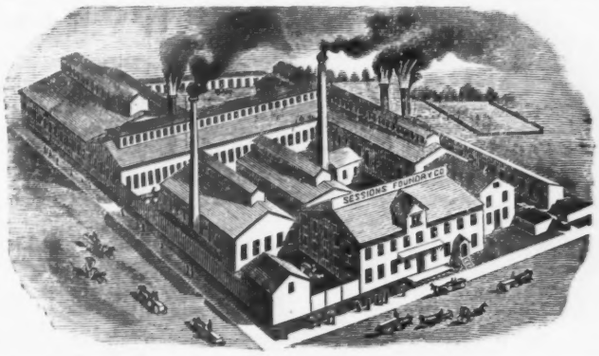

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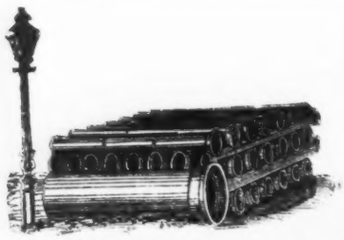

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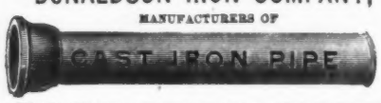

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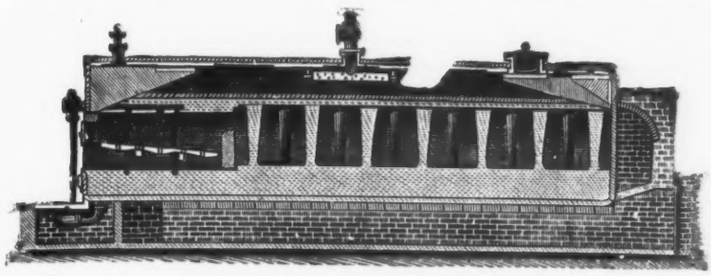

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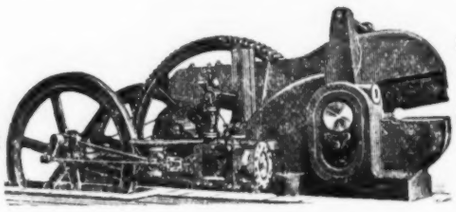

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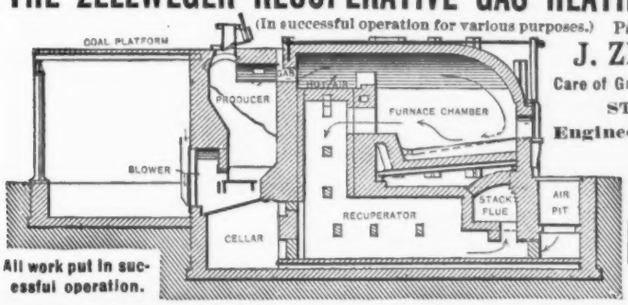

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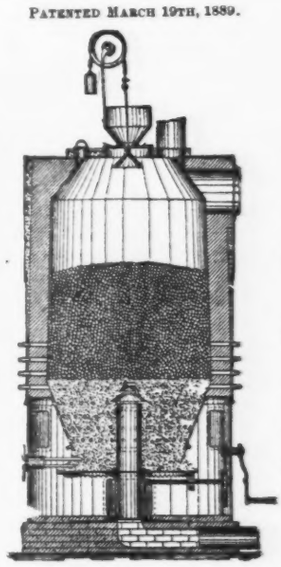

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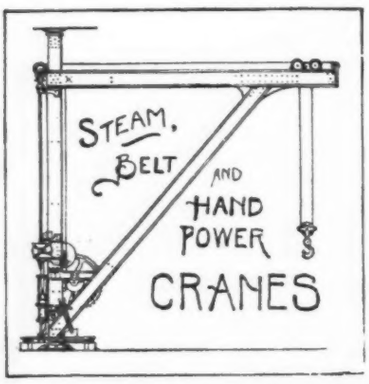

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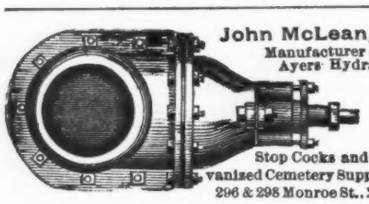

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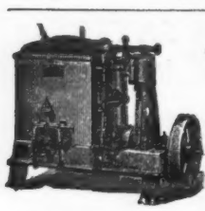

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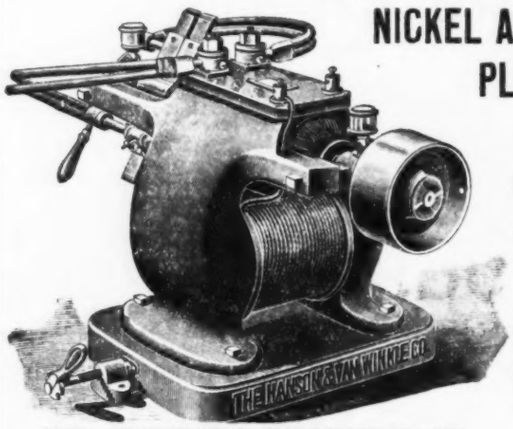

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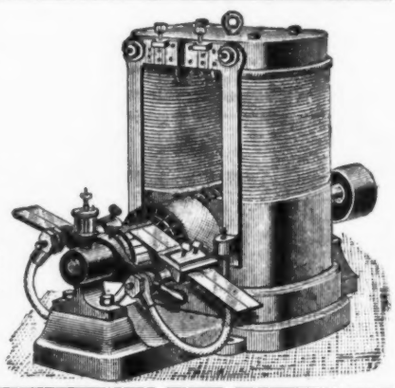

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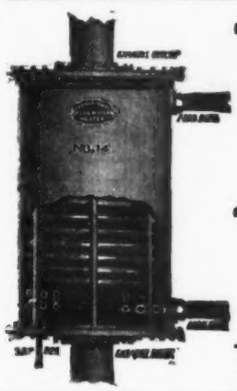

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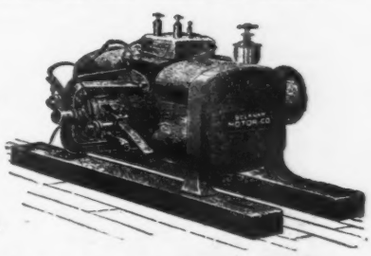

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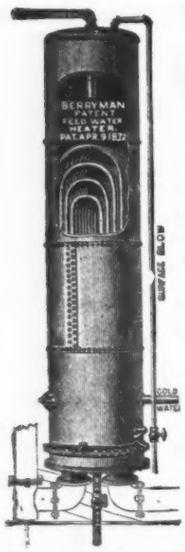

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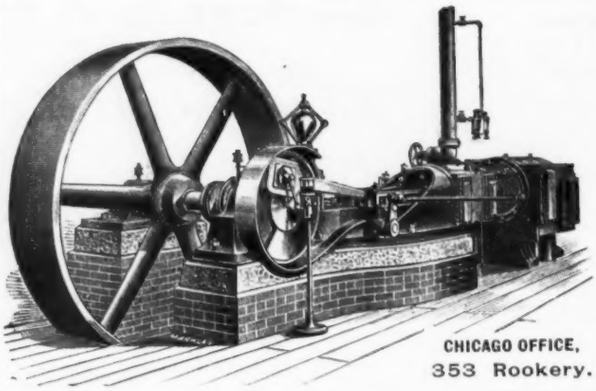

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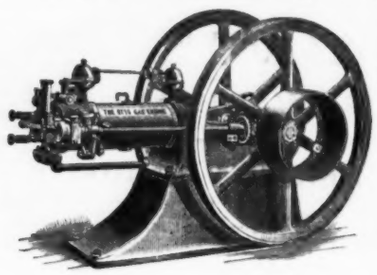

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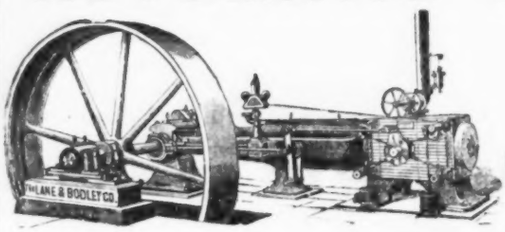

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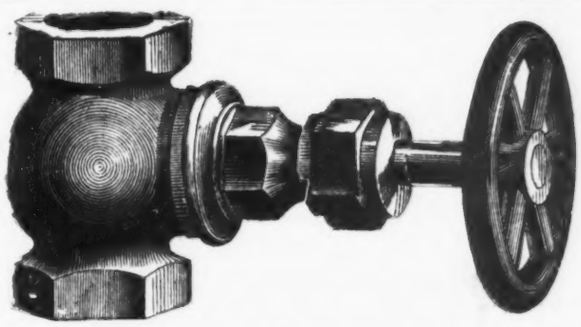

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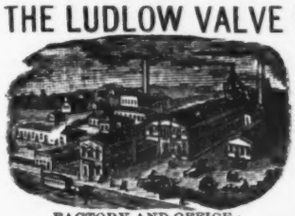

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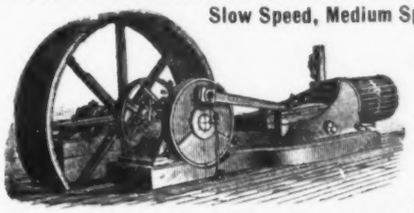

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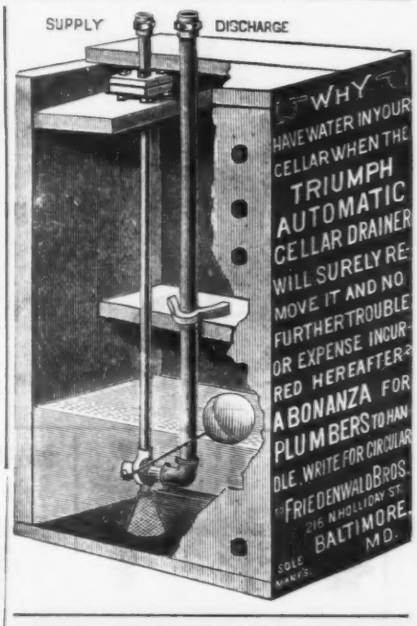

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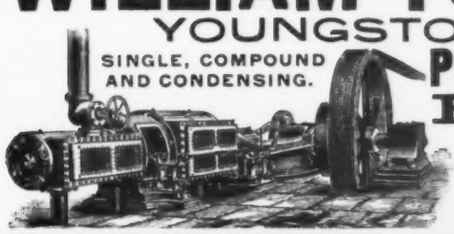

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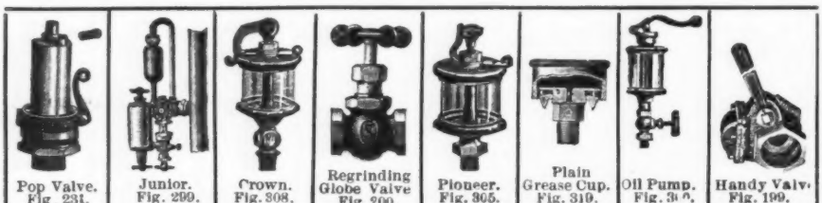

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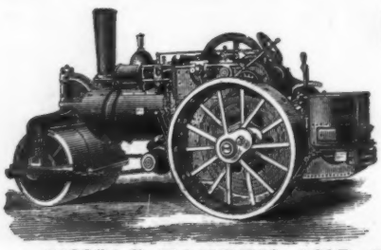

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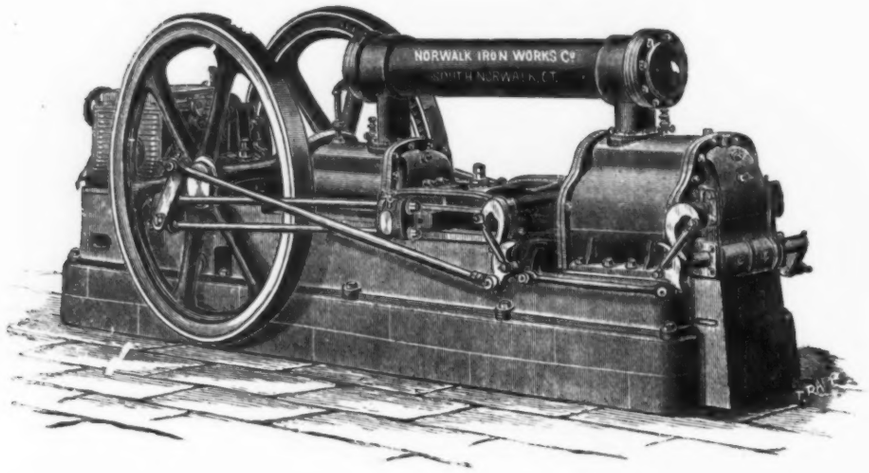

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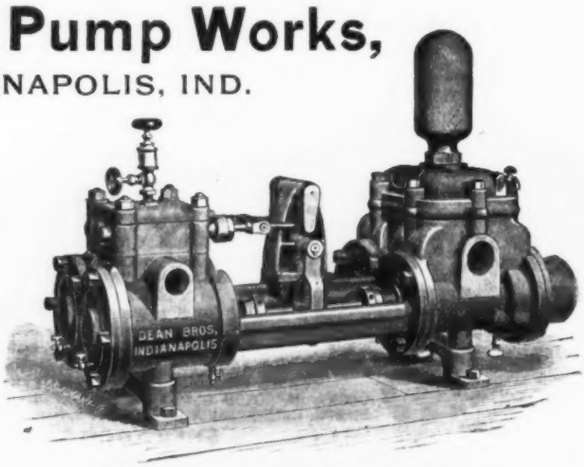

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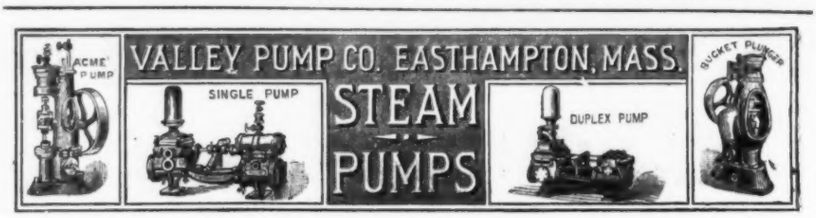

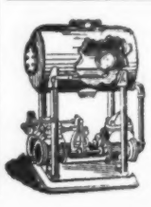

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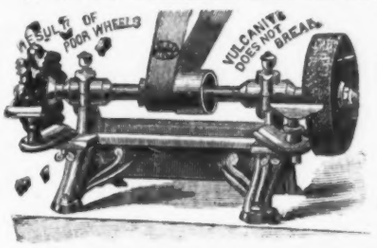

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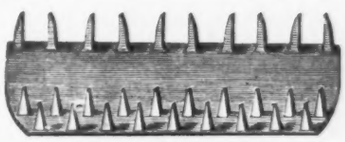

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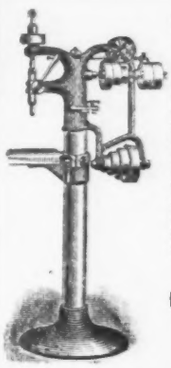

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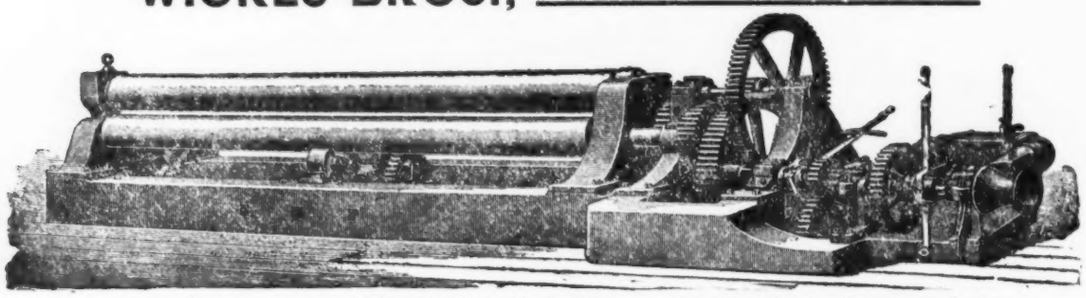

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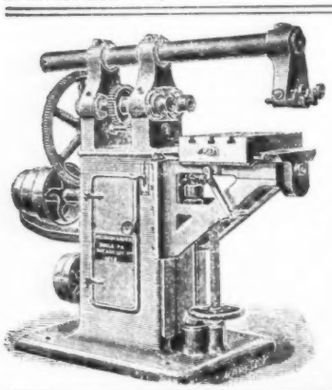

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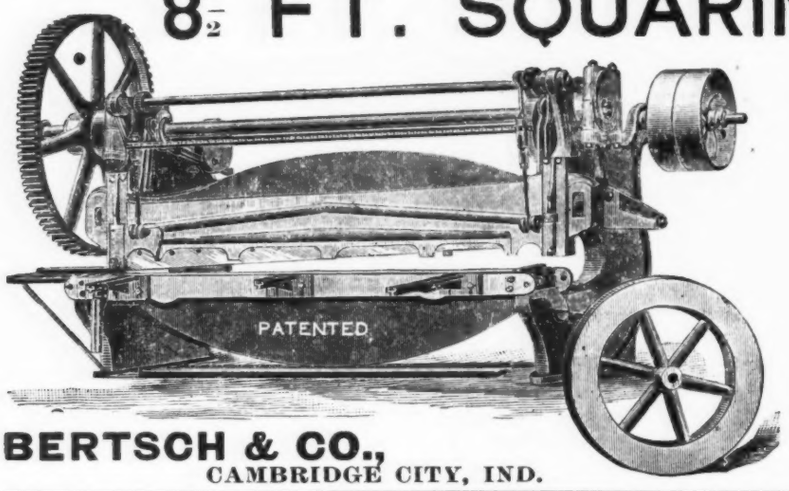

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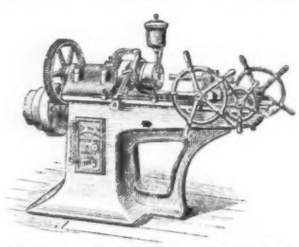

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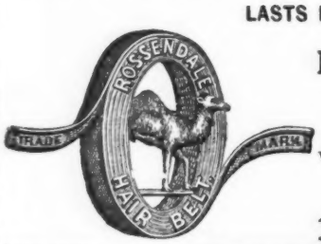

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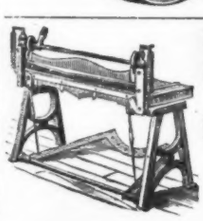

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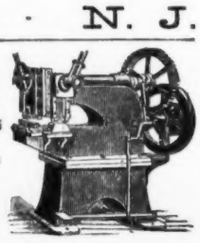

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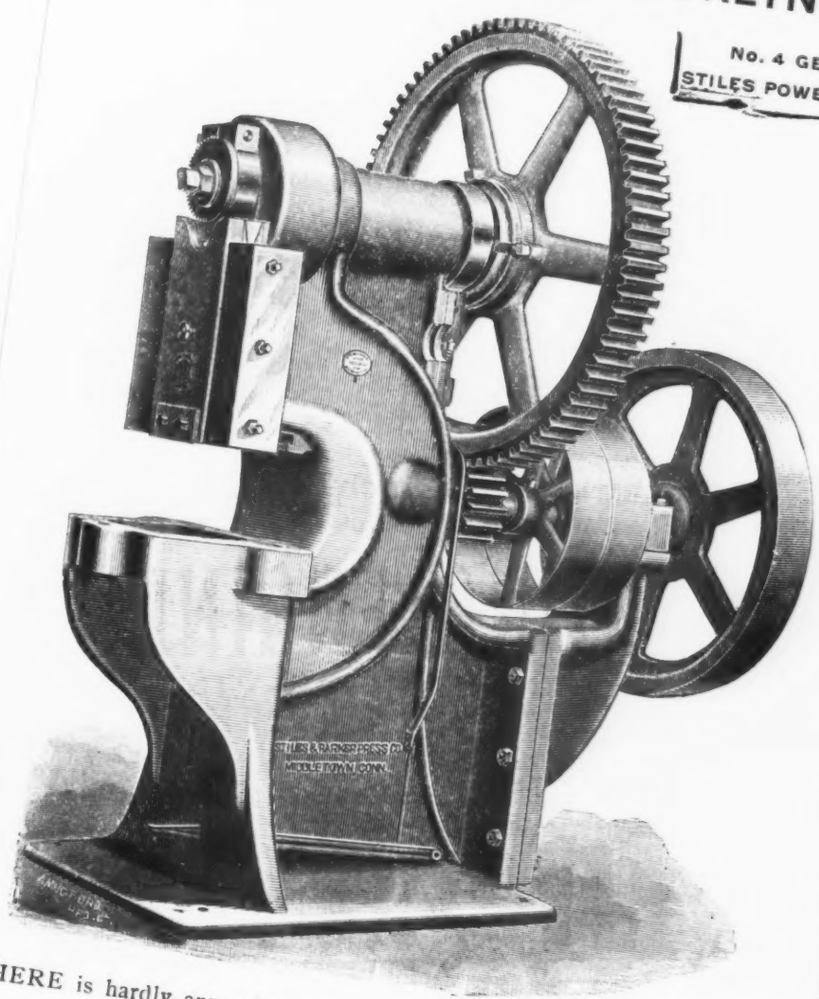

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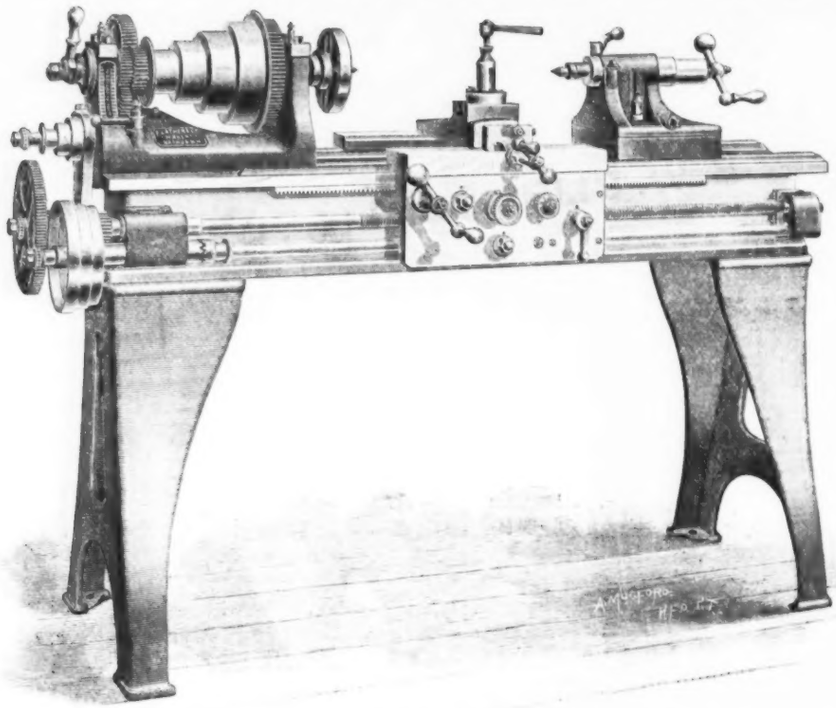

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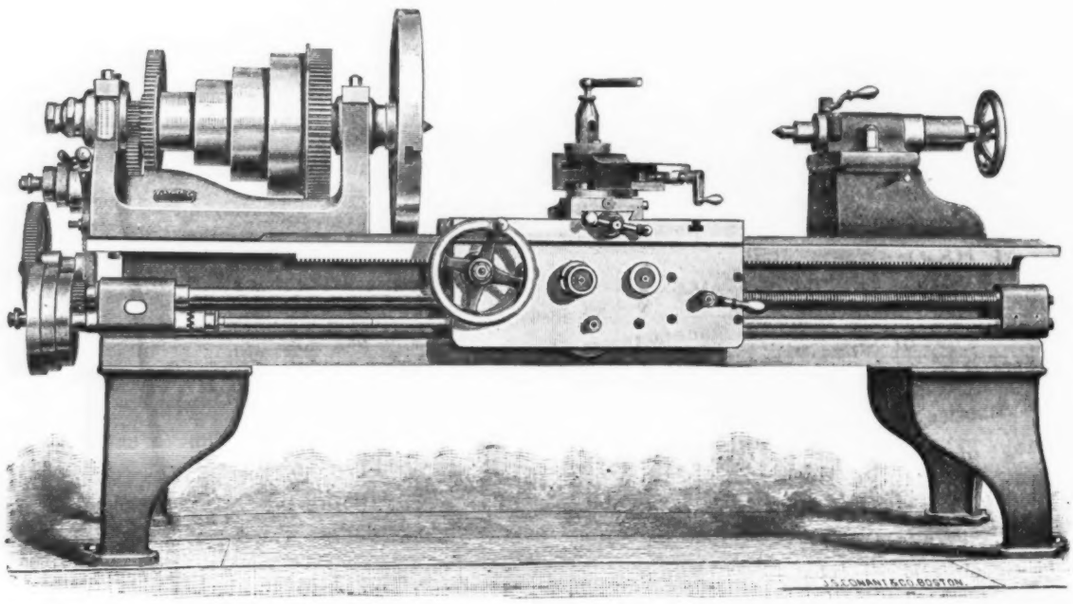

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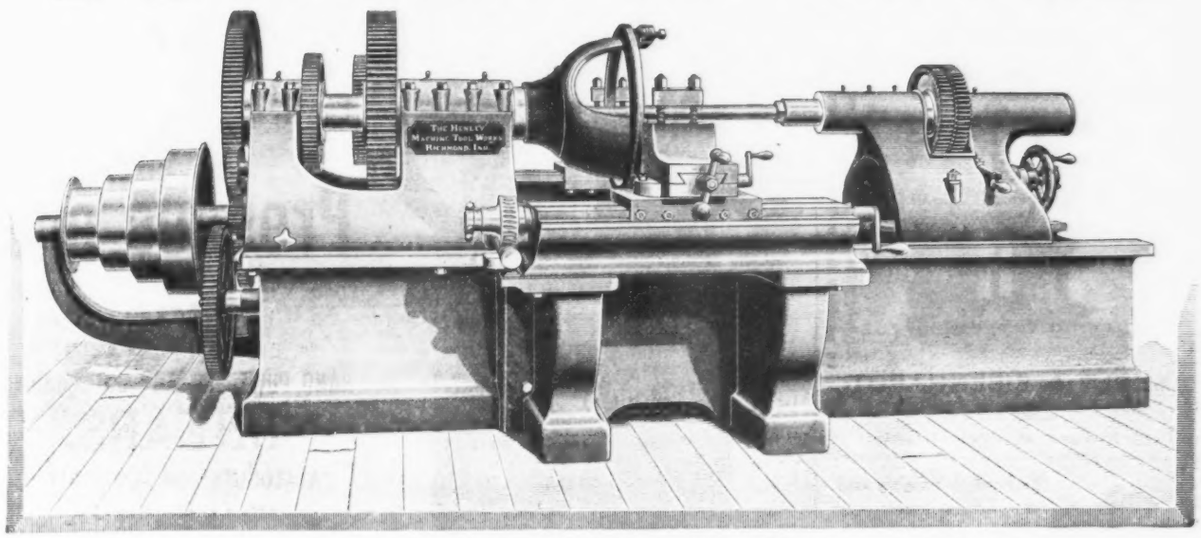

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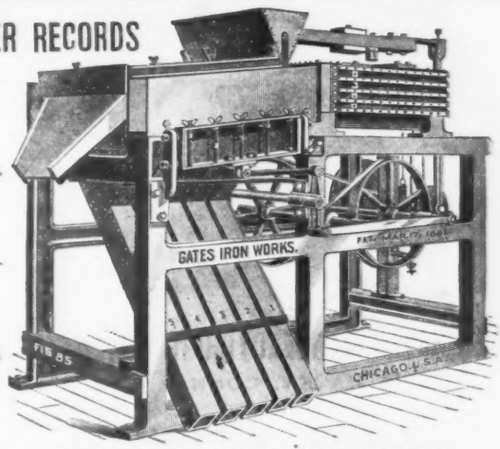

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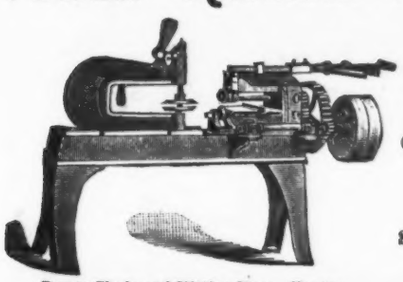

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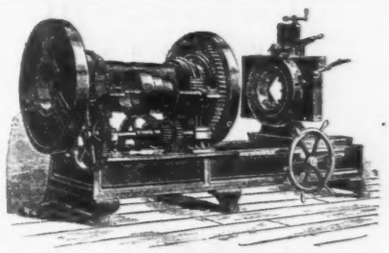

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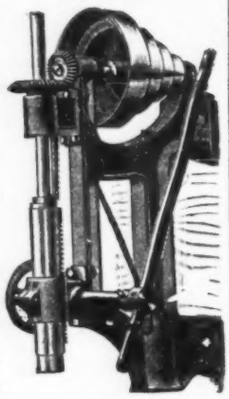

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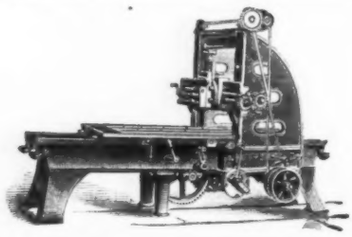

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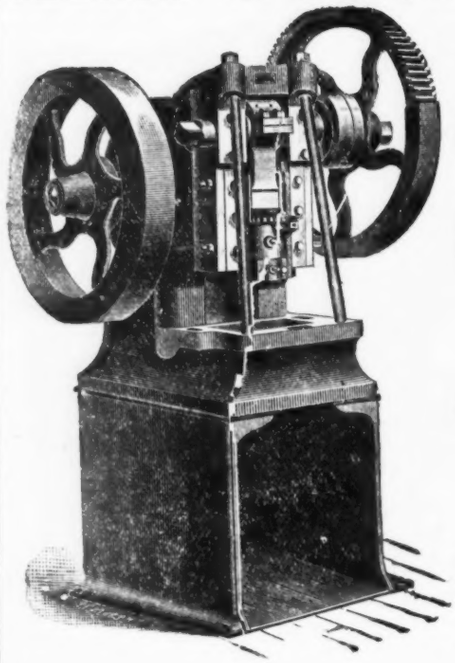

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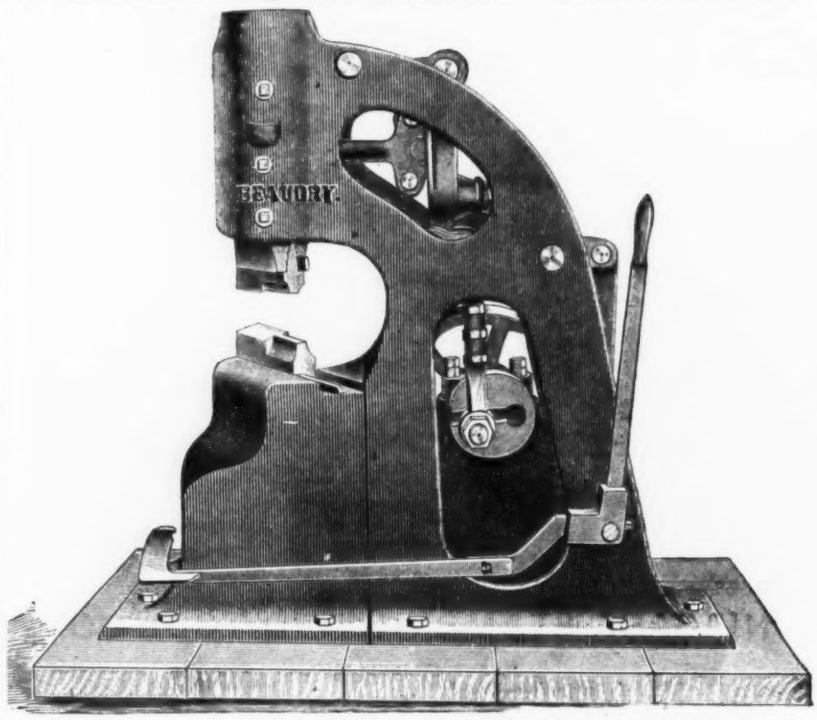

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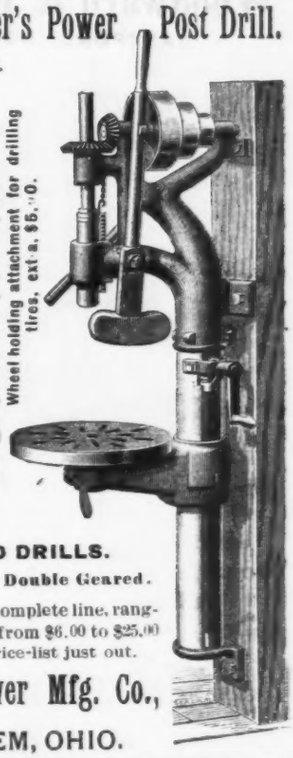

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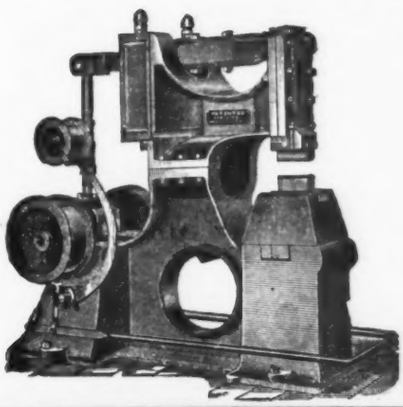

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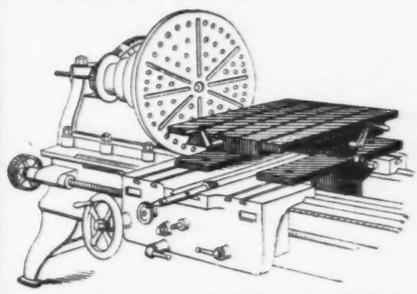

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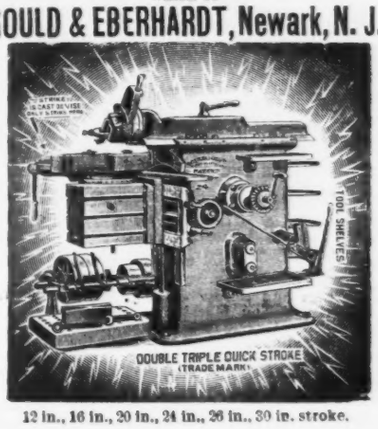

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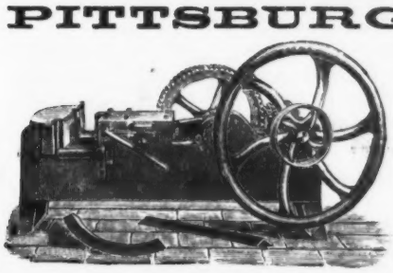

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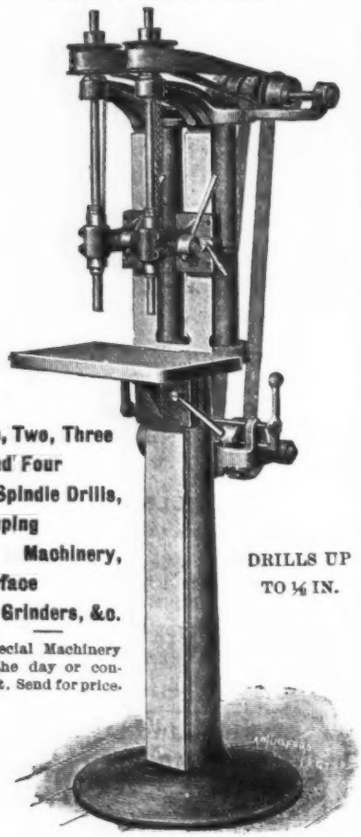

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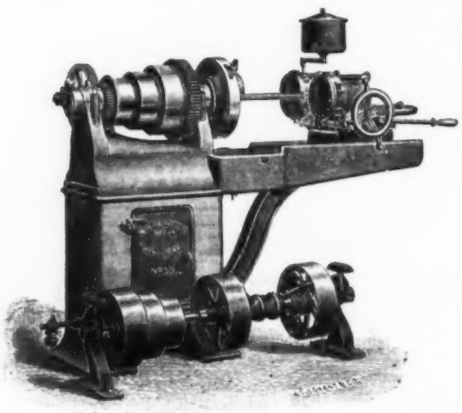

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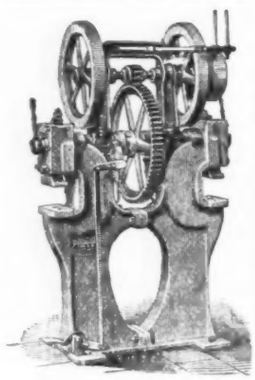

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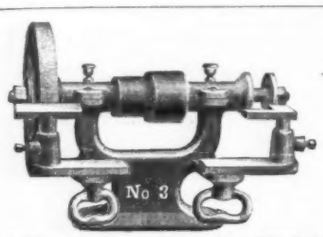

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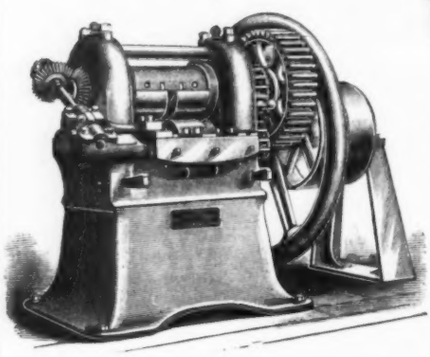

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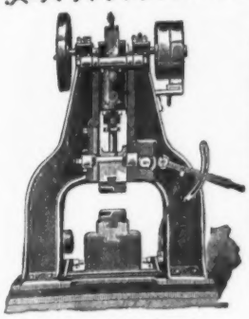

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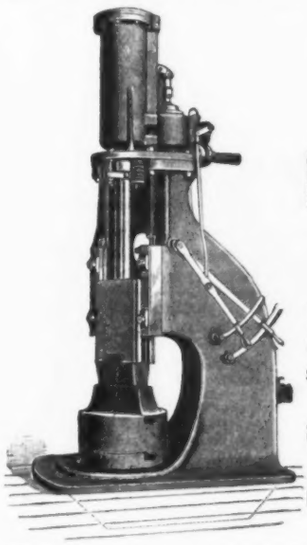

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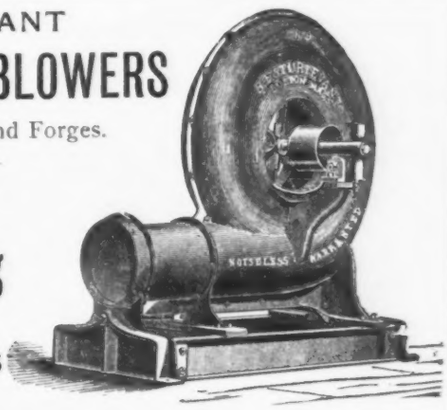

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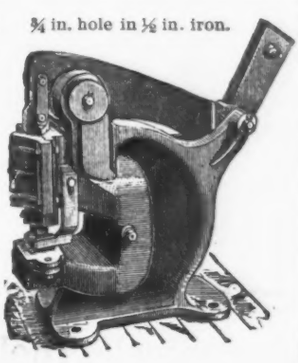

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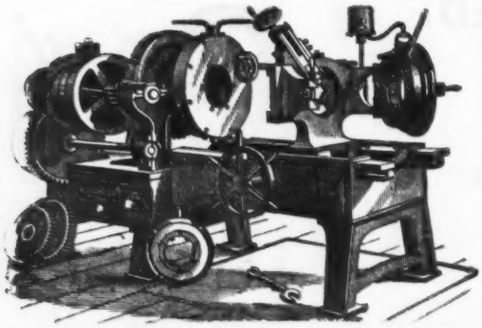

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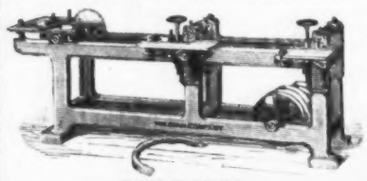

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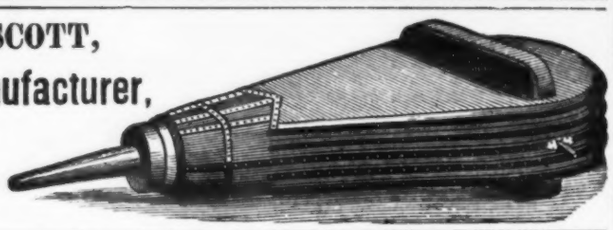

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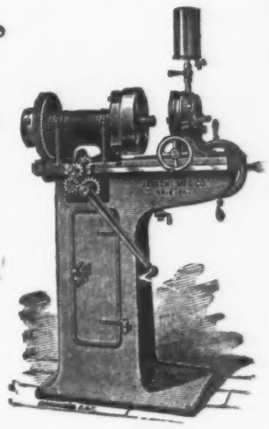

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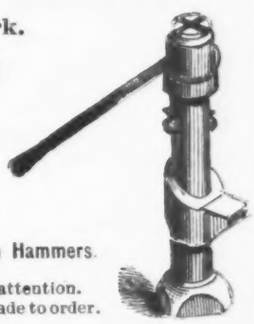

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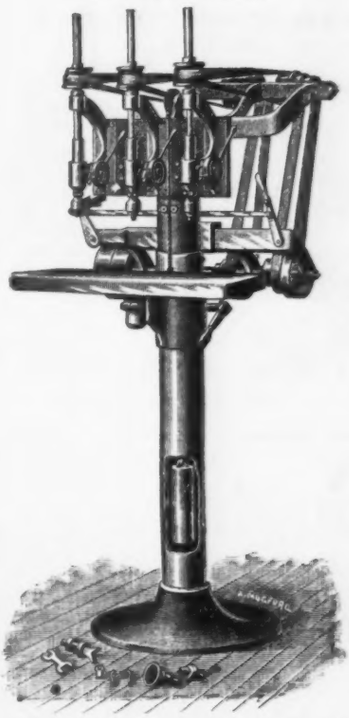

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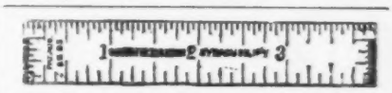

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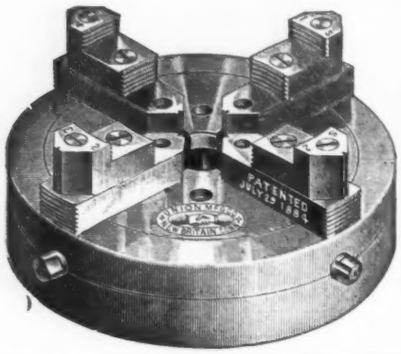

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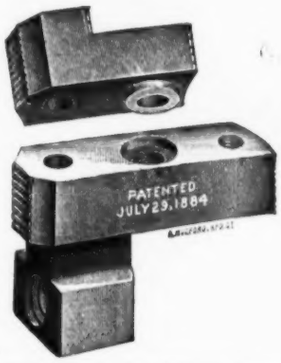

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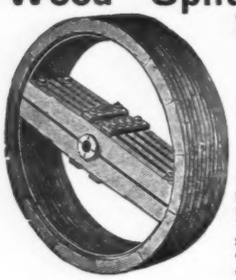

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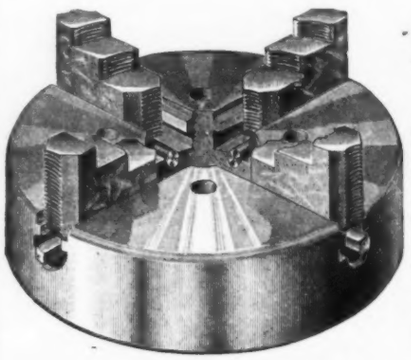

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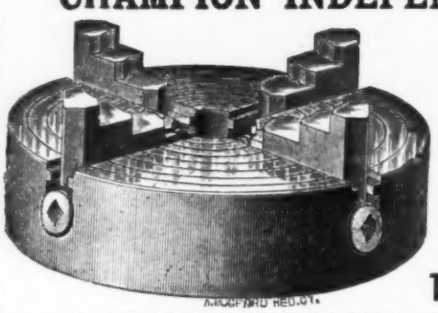

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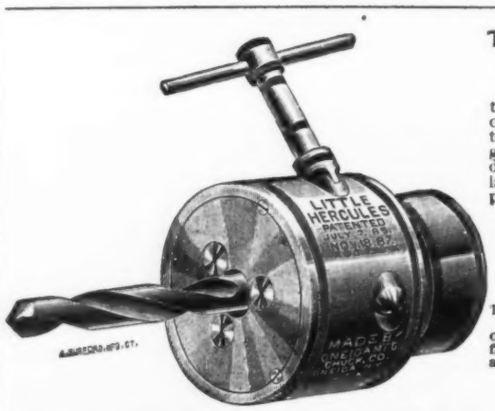

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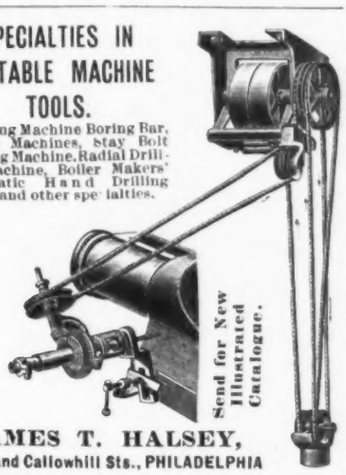

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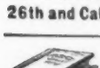

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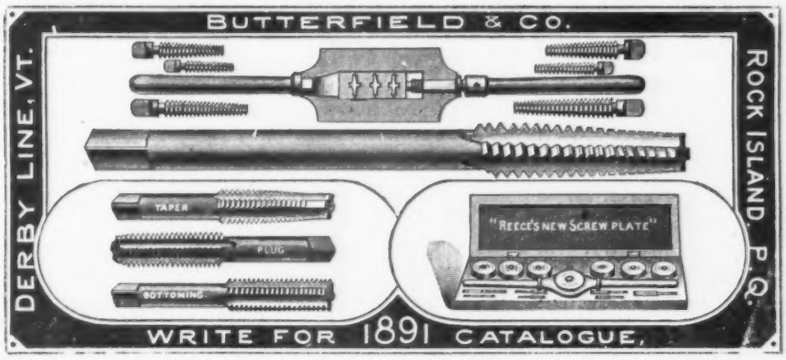

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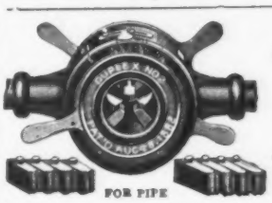

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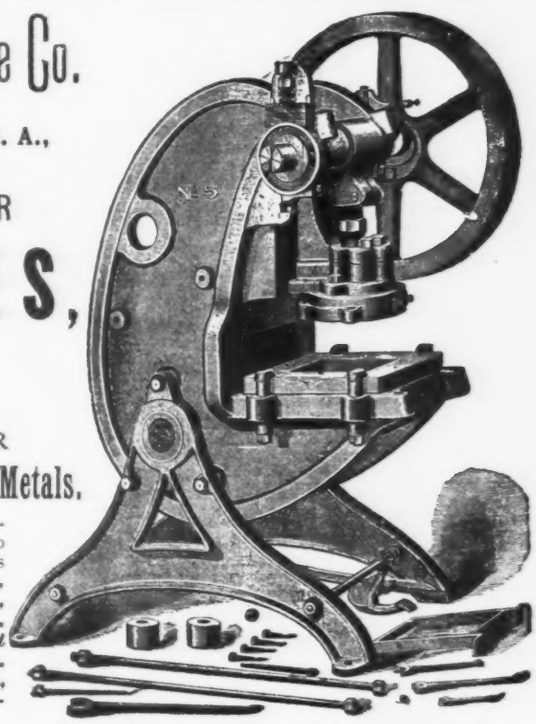

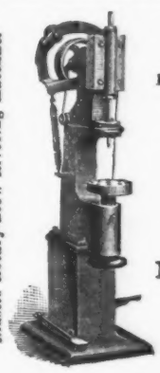

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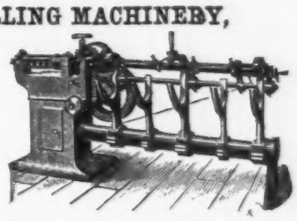

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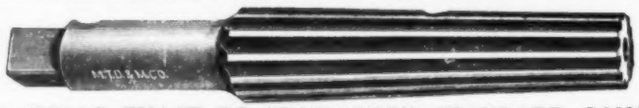

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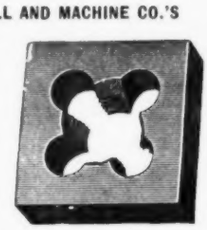

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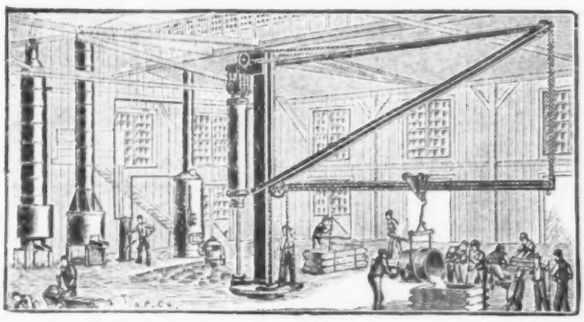

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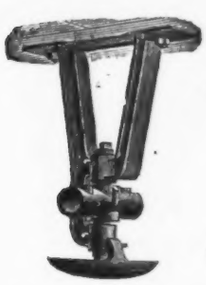

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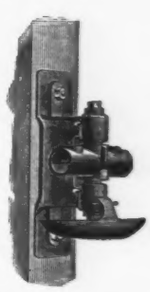

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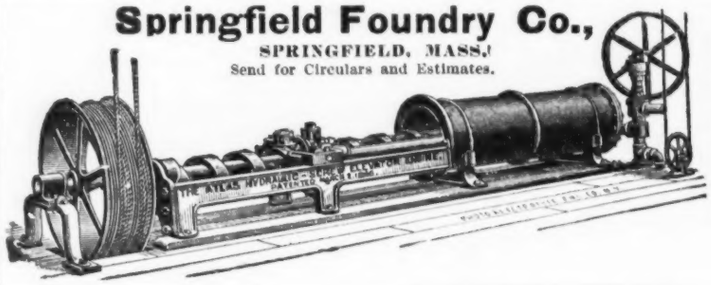

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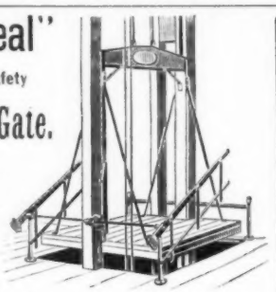

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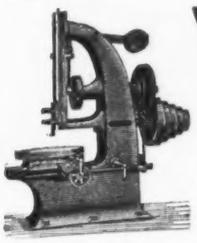

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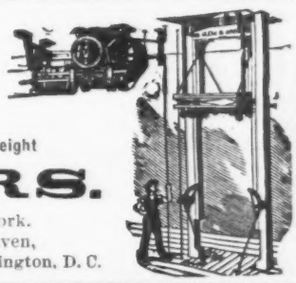

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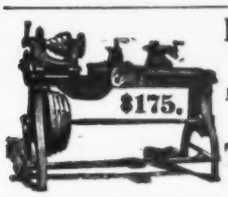

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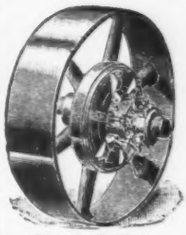

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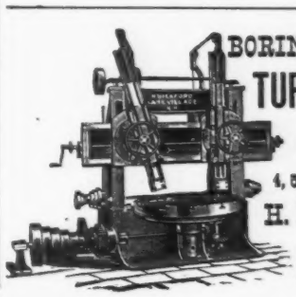

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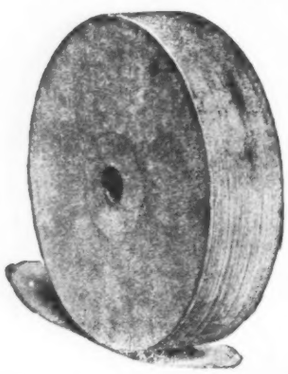

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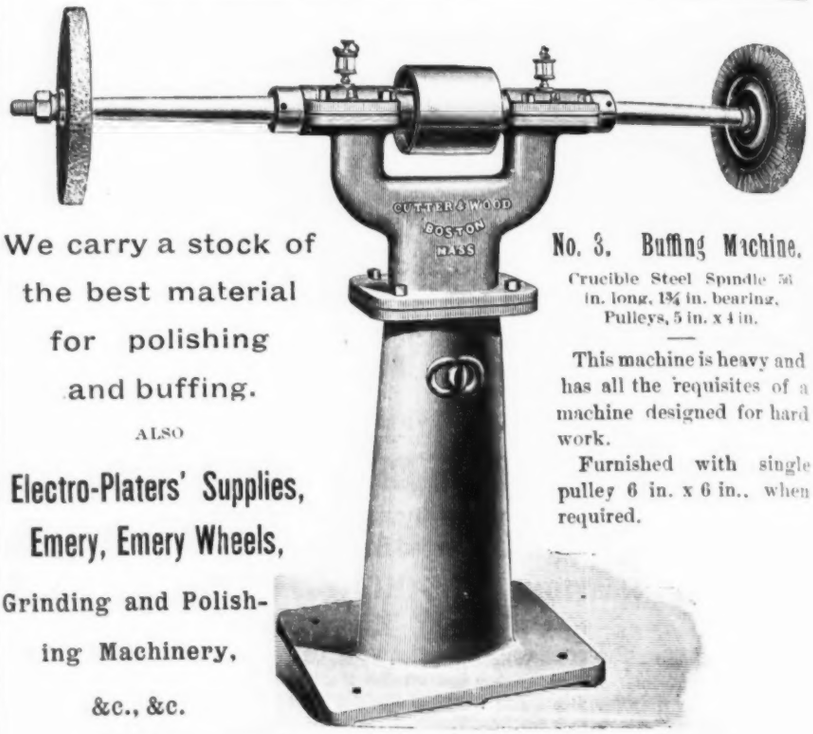

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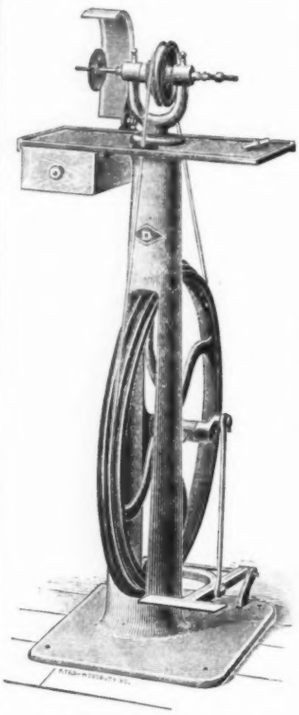

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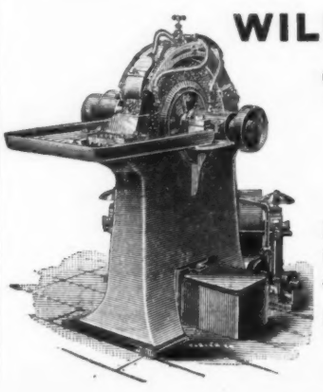

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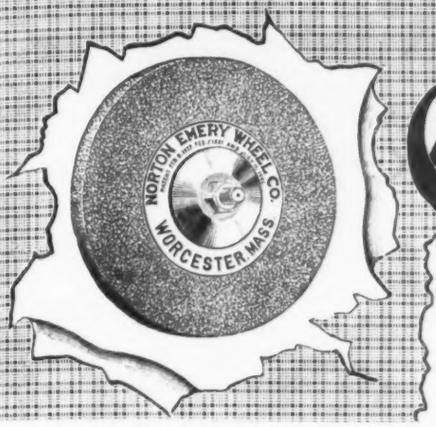

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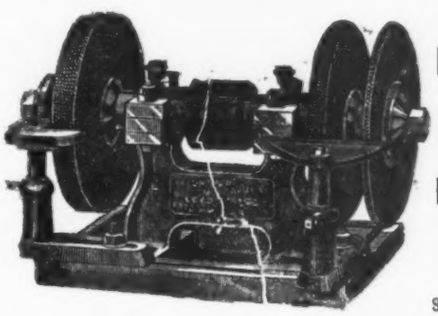

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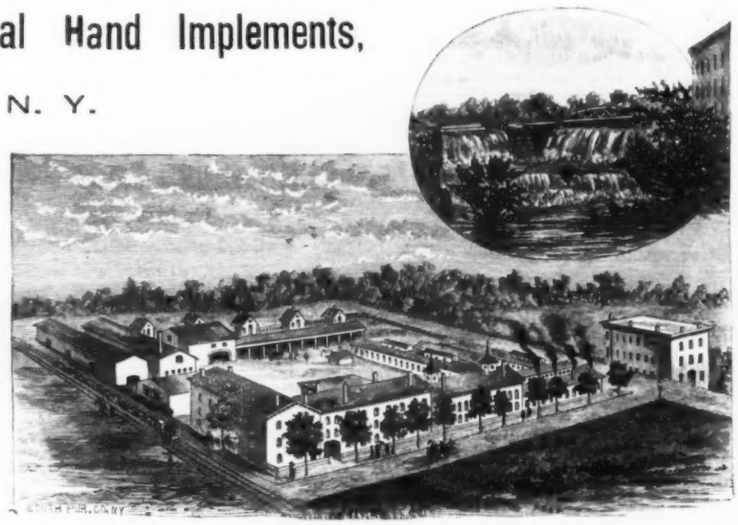

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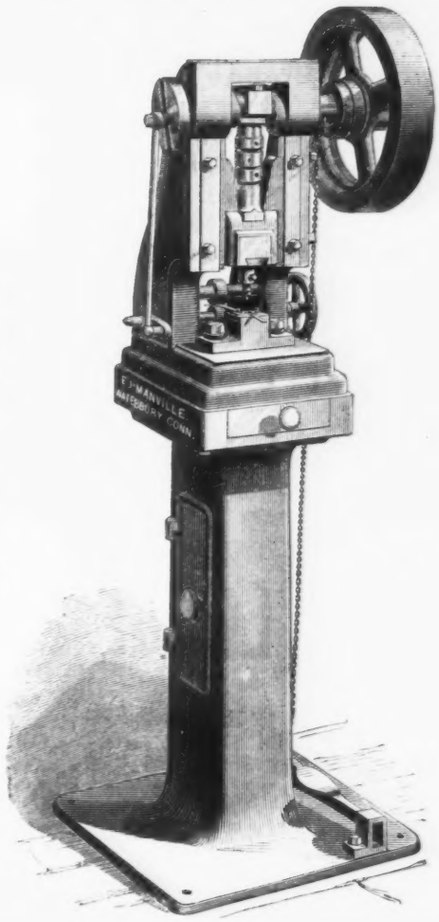

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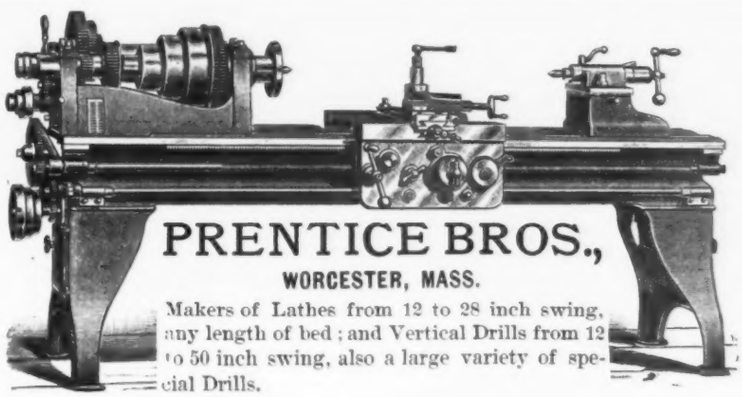

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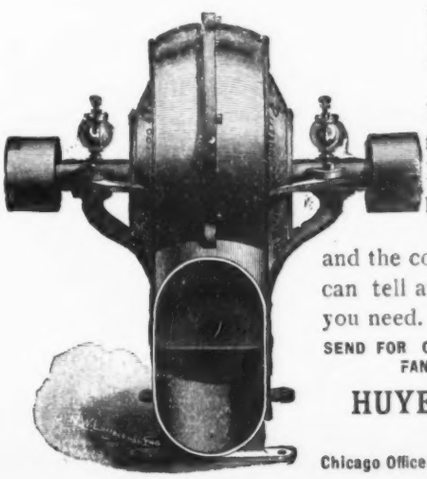

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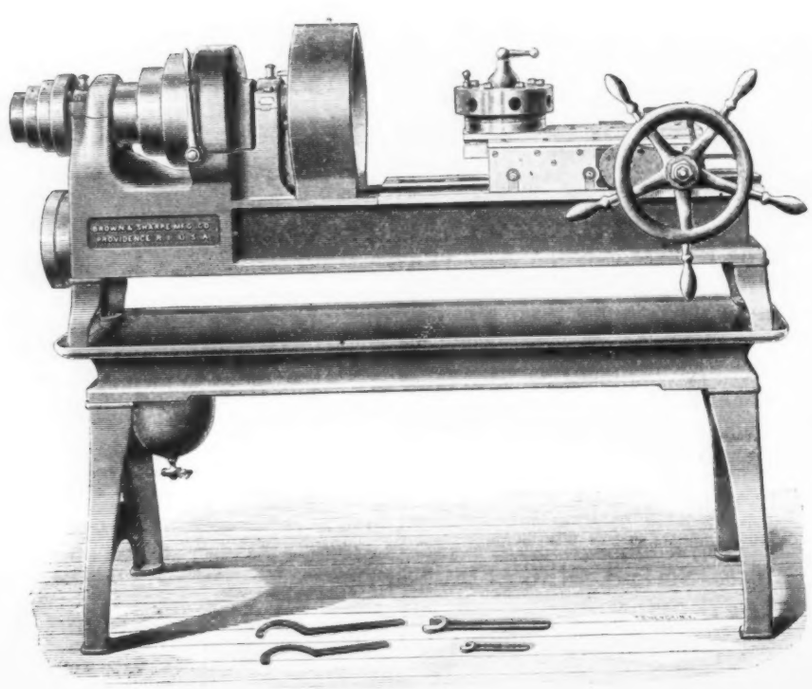

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1 6¾ in. x 8 in. Hor. Hoisting Engine. Double cylinder, double drum with boiler and attachments. (Mundy Friction.)
1 7 in. x 10 in. Hor. Hoisting Engine. Double cylinder, single drum with boiler and attachments. (Mundy Friction.)
1 6¾ in. x 8 in. Hor. Hoisting Engine. Double cylinder, single drum with boiler and attachments. (Mundy Friction.)
1 5 in. x 7 in. Hor. Hoisting Engine. Double cylinder, single drum with boiler and attachments. (Mundy Friction.)
1 7 in. x 10 in. Hor. Hoisting Engine. Single cylinder, single drum with boiler and attachments. (Mundy Friction.)
1 6¾ in. x 8 in. Hor. Hoisting Engine. Single cylinder, single drum with boiler and attachments. (Mundy Friction.)
1 6 in. x 6 in. Vertical Hoisting Engine without boiler. (Mundy Friction.)

L. F. SEYFERT'S SONS.
437-441 N. 3d St., Philadelphia, Pa.

MACHINERY IN STOCK.

Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in. x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 23 ft., triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

Taper Engine Lathes, 14, 16 and 18 in. x 6, 8, 10, 12 ft.; 20, 24, 28, 30 in. x 10, 12, 16 and 20 ft.

Square Arbor Fox Lathes, 14 in. x 5 ft.; 15 in. x 6 ft; 18 in. x 6.

Fox Monitor Lathes, 14 in. x 6 ft.; 15 in. x 6 ft.; 16 in. x 6 ft., 18 x 6.

No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
No. 3, 4, 5, 6 Power feed " "
No. 5 and 6 " " " " clutch back gear.

20, 22, 24, 28, 30, 32, 36, 38, 40 and 45 in. Drill Presses.

Crank Shapers, 6 in., 8 in., 10 in., 12 in., 15 in., 16 in., 17 in., 20 in., 24 in., 28 in., adjustable stroke.

Friction Shapers. 15, 16, 20, 22, 30, 32 in.

Iron Planers, 16 in. x 16 in. x 3 ft.; 20 in. x 20 in. x 4 ft.; 24 in. x 24 in. x 6 ft. and 8 ft.; 30 in. x 30 in. x 6, 8, 10 and 12 ft.; 36 in. x 36 in. x 12 ft.; 44 in. x 48 in. x 22 ft. 6 in.; 52 in. x 50 in. x 17 ft.; 72 in. x 60 in. x 15 ft. and 60 in. x 49 in. x 24 ft.

C, D and E Horizontal Boring Machines, Newark Machine Tool Co.

50 in. Single Head Boring and Turning Mill.
72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-hand.
60 in. Vertical Boring Mill. Second-hand. L. W. Pond.

Send for list of new and second-hand Machinery.

PRENTISS TOOL & SUPPLY CO.,
115 Liberty Street, New York.
59 So. Canal St., Chicago.

No. 3 Dallett Portable Drill, virtually new.....$165.00
18 in. x 8 ft. Engine Lathe. In good order..... 165.00
24 in. x 16 ft. Putnam Lathe..... 275.00
30 x 21 ft. N. H. Lathe..... 350.00
27 in. x 24 in. x 7 ft. Planer. Almost new..... 525.00
24 in. x 20 in. x 6 ft. Planer and Chuck. New.. 380.00
24 in. Barnes' Drill, Bk. Gd. Sf. Feed. New..... 275.00
28 in. " " " " " " 245.00
1¼ in. New Acme Head Bolt Cutter..... 185.00
No. 1 Power Punch Press, Wt. 850 lbs. New.... 100.00
Engines, Boilers, Pumps, Shafting, Hangers and Machinery.

AMER. TOOL WKS., Cleveland, O.

SECOND-HAND

MACHINISTS' TOOLS.

1 Planer, planes 16 ft. long, 62 in. x 62 in.
1 Planer, New Haven, planes 9 ft. long, 36 in. x 36 in.
1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 5 ft. 24 in. x 24 in.
1 Engine Lathe, 16 ft. bed, 84 in. swing, for Boring and Turning.
1 Engine Lathe, 11 ft. bed, 23 in. swing.
1 Engine Lathe, 10 ft. bed, 24 in. swing. Old style.
2 Engine Lathes, 8 ft. bed, 18 in. swing. Good.
1 Engine Lathe, 14 ft. bed, 18 in. swing. A1.
8 Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 475 lbs. Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¼ in.
And various other tools.

New York Machinery Depot,
Bridge Store No. 16, on Frankfort St., New York.

GEORGE B. EDDY.

Second-hand Machinery.

Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers' Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

FOR SALE.

Wright Engine 12 in. x 32 in.
Porter & Allen Engine 12 in. x 20 in.
F. McSWEGAN,
Dover Street and Franklin Square New York.

RARE CHANCE.

A MACHINE SHOP

OF

Second-Hand Tools

For Sale SINGLY.

MOSTLY FITCHBURG TOOLS.

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PHILADELPHIA, PA.

N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

14 in. x 6 ft. Engine Lathe, screw front, double T rest.
15 in. x 4 ft. Engine Lathe, screw back, double T rest.
15 in. x 6 ft. Engine Lathe, screw back, gauge attachment.
16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in. x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, com pound rest
16½ in. x 6 ft. Engine Lathe, screw front, compound rest
17 in. x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17¾ in. x 4 ft. Engine Lathe, screw back, double T rest.
17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
17⅛ in x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21⅛ in. x 10 ft. Engine Lathe, screw front, double T rest.
21⅛ in. x 10 ft. Engine Lathe, screw front, compound rest.
21¼ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 16 ft. Engine Lathe, screw back, double T rest, cross feed.
22 in. x 16 ft. Engine Lathe, screw front, doub'e T rest.
25 in. x 14 ft. Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26¾ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1⅜ in. holes with 12 in. diam. 3-jaw combination chuck.
13 in x 6 ft. Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 34 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No. 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

PENNSYLVANIA MACHINE CO., Ltd.,
31 N. Seventh St., Philadelphia, Pa.
(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

5 clay and ore pans, 11 rail, bar, sheet and clipping shears, 23 hoisting engines, 41 stationary and portable boilers, 48 stationary and portable engines, 12 steam and 9 centrifugal pumps, 3 air compressors, one standard gauge road engine and one standard gauge shifting engine.

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DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¼ x 10 in., with Double Drums Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

FRANK TOOMEY,
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FOR IMMEDIATE DELIVERY.

1 15 H.-P. Double Cylinder, Double Friction Drum, Horizontal Hoisting Engine, with Boiler complete. New.
1 Each 15 and 20 H.-P. Detached Portable Engine. Erie City Iron Works
1 Each 15, 25 and 35 H.-P. Self Contained Engine. Chandler & Taylor. New.
1 25 H.-P. Weston Engine. High Speed. First-class Order.
1 25 H.-P. Straight Line Engine. Good order.
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1 15 H.-P. Ames Engine No. 1 order.
1 10 H.-P. Automatic High Speed Engine. New.
1 10 H.-P. Horizontal Engine. Good order.
1 8 H.-P. Horizontal Engine. Good order
1 6 H.-P. Horizontal Engine. Good order.
2 5 H.-P. Horizontal Engines. New and complete.
1 Each Combination Vertical Engine and Boiler 3, 5, 7, 10 and 12 H.-P. New.
1 Each Excelsior Engine and Boiler Mounted, 5, 6 and 8 H.-P. New.
1 5 H.-P. Payne Automatic Engine and Boiler. First-class order.
1 3 H.-P. Baxter Engine and Boiler. First-class order.
1 2 H.-P. Vertical Engine and Boiler. New.
1 2 H.-P Shipman Engine and Boiler. Good order.
1 1 H.-P. Shipman Engine and Boiler. Fair order.
1 Each 20, 25, 30, 35, 45 and 50 H.-P. Horizontal Boilers. New. Erie City Iron Works.
1 60 H.-P. Second-Hand Boiler, Good order.
1 Each Champion, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 Each Champion Steel Pressure, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 Each Champion Exhaust Fan, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 No. 8 Cupola Blower, Sturtevant. Good as New.
1 No. 6 Boston Blower. Good as New.
1 Gear Cutter. Gould. In good order.
1 Dynamo, 250 light. Good order.
1 Riehle Transverse Testing Machine with Indicator. Capacity 5000. New.
1 Tapping Machine. Woodward & Rogers New.
1 Shear and Punch combined. Light Machine. New.
1 Nut and Washer Punch. Cheap.
1 Lot Wire Drawing Machines. Very cheap.
1 Lot Nail Making Machines. Very cheap.
1 Large Sorgum Roller. Weight 16,000 lbs. Very low.
1 44 in. Boring Lathe. Good as New.
1 36 in. Cupola, Blower, Rattler and Ladles. Good as New
1 Power Chain Hoist, with Heavy Chain Complete.
1 Grindstone with Iron Frame. Cheap.

Send for List of Lathes, Drills, Planers, &c., for prompt delivery.

W. P. DAVIS,

Rochester, N. Y.

See List of New Machinery next issue.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spinning Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 10 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,

143 Liberty Street, N. Y. City.

BARGAINS FOR CASH.

Write for Prices.

1 53 in. x 30 ft. Second-hand Lathe.
1 50 in. x 22 ft. " "
2 No. 9 Pulsometer Pumps.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second hand.
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 No. 1 Root Blower.
1 2 H.-P. Shipman Oil Engine.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " " "
2 42 in. x 11 ft. " Boilers "
1 1 H.-P. Acme Oil Engine.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " " "
1 4 H.-P. Baxter Engine and Boiler.
1 15 H.-P. Shapely " " "
2 36 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P. Horizontal Engines and Boilers. New and Second Hand.
1 20 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft. Porter Lathe. New.
1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

LOVECROVE & CO.,

Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in. swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,

156 Oliver Street, Boston, Mass.

1 Pulley,	52 x 32 x 3 15-16.	54 x 12 x 3 7-16.
"	56 x 24 x 3 15-16.	60 x 25 x 3 15-16.
"	60 x 24 x 3 7-16.	60 x 14 x 2 15-16.
"	60 x 14 x 3 7-16.	62 x 14½ x 3½.
"	62 x 24 x 3½.	66 x 14 x 3 15-16.
"	72 x 22 x 3 ⅞.	72 x 19 x 3 15-16.
"	73 x 2 x 4 9-16.	76 x 21 x 3 15-16.
"	84 x 25 x 6.	84 x 21 x 4 7-16.
"	91 x 19 x 4 7-16.	102 x 15 x 4 15-16.

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D. B CRUIKSHANK,
243 Dyer St., Providence, R.I.

Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,

123 N. Third St., Philadelphia.

50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., rates at 65 Revolutions. Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. Made by C. H. Brown & Co.

A Great Big Bargain.

THE SCRANTON SUPPLY AND MACHINERY CO.,

Scranton, Pa.

Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

WM. H. PERRY & CO.,
Providence, R. I.

FOR SALE.

New and Second-Hand

METAL WORKING

MACHINERY.

Send for list of same for immediate delivery.

Wanted to Purchase for Cash,

Second-Hand

Metal Working Machinery.

Geo. Place Mch. Co.,

120 Broadway, New York.

ROCK DRILLS, 5 in., 3½ in., 3 in., 2¾ in., 1¾ in., but little used; with or without tripods, steels and hose. Ingersoll or Sergeant make.

LIGHT LOCOMOTIVE. Baldwin, 9 in. x 14 in., 36 in. gauge, Forney Type, in good condition.

STEAM SHOVEL, 1¼ Cubic yard Barnhart Shovel, used 18 months.

ENGINE and BOILER, 35 H. P. engine; 50 H.-P. horizontal tubular boiler, nearly as good as new.

F. W. IREDELL, 10 Park Place, New York.

LIGHT RAILS

35 tons extra fine 20 lb. steel, 20 tons very good 16 lb. iron. Also lot 30s and 35s.

Locomotives, Cars, Hoisting Engines, Stone Crushers, Contractors' Tools, &c.

Thos. P. Conard,

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NEW 14 in. SWING

DEXTER LATHES.

5 foot bed $180.00. 6 foot bed $185.00.

Also 16, 18, 21 and 24 inch swing.

Send for cut and full description.

A. B. Pitkin Machinery Co.,

PROVIDENCE, R. I.

Mention *The Iron Age.*

FOR SALE.

SECOND-HAND.

1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

The Powell Planer Co.,

Worcester, Mass.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small. "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $300 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 46 Dey St., New York.

Bargains for cash before removing to our new store, 46 N. 7th St.

One 10 x 24 Horizontal engine. A No. 1 condition.
One 4 x 4 " " " "
One 8 x 14 Vertical " " "
One 6 x 6 " " New.
One 7 x 7 " " "
One 5 x 6 " " "
One 6 x 7 " " "
One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.
HIGH & DAMPMAN, No. 123 N. 3rd St. Philadelphia.

FOR - SALE - CHEAP.

Deane Piston Pump, 6 in. suction 4 in. discharge, almost new.
Address
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FOR SALE.

One 21 in. x 13 ft. Lodge & Davis improved Engine Lathe. Complete.
One 24 in. x 30 ft. Fifield Engine Lathe. Complete.
One 3 ft. Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.
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BESSEMER PIG IRON

3000 tons No. 1 Bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

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We offer 100 tons second-hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).
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1 2000 lb. double standard Bement Steam Hammer with Anvil and Extra Piston Rod. Hammer is in first-class condition. Immediate delivery.
100 lb. Bradley Cushion Hammer.

Geo. Place Mch. Co.,
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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address
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FOR SALE
SECOND-HAND
FEED-WATER HEATERS.

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

BENJ. F. KELLEY & SON.
91 Liberty St., New York.

FOR SALE.

Large lot of Loco. Boilers,
50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

Second-Hand
Boiler Tubing

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.
Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address
Wm. F. Jarvis & Co.,
Detroit, Mich.

FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.
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1142 Washington Ave., Philadelphia.

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CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

Large Planer, For Sale Cheap.

Built by D W. POND.

20 ft. bed., 43 inches between housings (extra heavy). Latest make, only used one year. Apply to
J. NUTTALL,
1723 N. 5th St., Philadelphia, Pa.

CHARCOAL
IRON BLAST FURNACE.
FOR SALE OR LEASE.

A 50 ton Iron Furnace, with charcoal ovens, tramway to our fields, pipe line to reservoir, switches connecting with trunk railroad at its site. A most complete plant in every detail. For information address
EDW. S. MAUNSELL,
P. O. Box 410, New Orleans, La.

FOR SALE.
Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.
THE GOULDS MFG. CO.,
Seneca Falls, N. Y.

—:CORLISS:—
Automatic Engines
—ALSO—

Electric Light, High Speed and Slide Valve Engines in first-class condition for immediate delivery at very low prices.

1 30 x 72 Corliss Condensing Engine.
1 Pair Corliss Condensing Engines, 20 x 48.
1 23 x 36 Corliss Engine.
1 20 x 48 Corliss Engine.
1 16 x 42 Corliss Engine.
1 12 x 36 Corliss Engine.
1 Pair Woodruff & Beach Condensing Engines, 20 x 48.
2 11 x 20 Buckeye Engines.
1 14 x 24 Buckeye Engine.
2 13 x 12 Armington & Sims.
Slide Valve Engines, 11 x 24, 10 x 16, 10 x 12 and 8 x 8.
Several Steel Tubular Boilers 50 to 125 H.-P. also, several sizes Pumps, Rock-Drills, Fan Blowers, &c., &c. Send for Circular.

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FOR SALE. SECOND-HAND.

Sturtevant Blowers, No. 4 to No. 80. Large stock.
Backus Exhaust Fans, size E, 42 inches.
Berryman Feed-water Heater, 9 in. exhaust, 44 in. diameter, 8 ft. high.
Barawawagnath Heaters, 1½ in. feed, 8 in. Exhaust.
Lighthall Surface Condenser, 882⅝ in. Tubes. 8 ft. long.
Otis and Reedy Elevators.
Julian Storage Battery, 55 cells, 2 volts, 200 Amps.

"Giant" Railroad Excavator and Wrecker
Built by Vulcan Iron Works Co., of Toledo, O.
This Excavator is mounted on 33 foot Standard Gauge Car, and has a capacity of 1500 to 2000 yards. Has seen very little service. Will sell low or will rent to responsible parties.

Rand & Rattler Rock Drills, with and without Tripods
Extra Heavy Bushnell Knuckle Joint Press.
10 to 100 H.-P. Boilers, 1 to 500 H.-P. Engines.
Pumps, all makers and sizes and general machinery
MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools.
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ⅝ in. Chapin. 1 in. Smith.
2 Nut Tappers. 6 spindle for ⅜ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern.
2 Heaters, medium and large size.
1 No. 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.
W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

WANTED.

SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.
"MANUFACTURER," P. O. Box 1840,
New York, N. Y.

FOR SALE
OR TO RENT.

The premises formerly occupied by The Stiles & Parker Press Co., Middletown, Conn., comprising Machine Shop, Blacksmith Shop and Foundry, supplied with new 100 H.-P. boiler, engines, traveling crane, blower and main lines of shafting. Everything in first-class order. Photographs and plans furnished on application.

E. W. BLISS CO., Ltd.
17 Adams St., Brooklyn.

IRON and STEEL or MACHINE Works desiring a **SPECIALTY.** Exclusive territory granted. Address "SPECIALTY."
Office of *The Iron Age*, 220 So. Fourth Street Philadelphia, Pa.

Changed Weekly.

— PLANTS. —

WANTED.—By Philadelphia Machinists employing 75 hands, new location nearer New York.

FOR SALE.—Tack Works, 25 Machines, Illinois.

WANTED.—Location for Polished Rod Manufacturer, within 100 miles of New York; building about 100 x 30 with one or two wings preferred. Send for names of above.

FOR SALE.—Vineland, N. J., by R. S. Armstrong's Sons foundry and machine shop, on two Railroads, buildings 60 x 90, acre of land, Depot across the street. Splendid location for light manufacturing, being near Philadelphia and New York.

— FOR SALE. —

BOLT HEADERS.—Five new, two second hand, made and owned by Samuel Hall's Sons, 229 West 10th Street. Will make all kinds of bolts; will make square and hexagon without changing tools; will make round, square, button head, round or square under the head; will head rivets; will head from ¼ to 1¼ inch inclusive. These are made in the strongest manner and for service. If you can use or sell write them direct, or the undersigned.

CARS, Flat, 12 Penna. R. R. Standard.

ENGINE, Roper, 5 H.-P. Offer wanted.

GAS ENGINES, 5 and 10 H.-P., new, guaranteed, perfect order, will put in on trial within reasonable distance. By Pennsylvania Diamond Drill Co.

TO TOOL MAKERS, have large lot of seasoned Dogwood and Persimmon Blocks, sawn to sizes. Can you use them?

STREET CAR, combination, half open, half closed.

LOCOMOTIVE, 34 in., saddletank. Perfect order. Pa.

PIPE, 6 inch flange, good.

WIRE for bundling, different sizes.

CARS, dump, 20, side, 2 and 5 yds.

RAILS, 16s, 20s, 30s, fit to relay.

HARDWARE DEALERS, BIRD CAGE MANUFACTURERS, have two highly finished racks made by Mitchell, Vance & Co. for an exhibition, about 15 feet high, 25 arms each, which will be sold at a low price.

—Agents Wanted.—

WAECHTER, LANE & CO., Canton, Ohio, on their Small Steam Pumps, claimed to be at least equal to any made and a boon to agents.

PENNSYLVANIA DIAMOND DRILL CO., Birdsboro, Pa., for their Diamond Prospecting Drills. Liberal inducements offered.

W. R. SANTLEY & CO., Wellington, Ohio, for their well known Belt Holder. Thousands in use and every one a recommendation.

HARKINS FOUNDRY CO., Bristol, Pa., for their unexcelled dumb bells, quoits and specialties in hardware.

— WANTED. —

Correspondents in every town and city to whom I can send lists of what is offered me for sale and to whom I can offer agencies for articles that are sent me. Let me hear from you.

H. H. Mansfield,
126 Liberty St., N. Y.

Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,

59-73 West St., - Brooklyn, N. Y.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

THOMSON-HOUSTON MOTORS FOR SALE.

One 35 H.-P., one 20 H.-P., T. & H. Motors, second-hand, in perfect condition, for sale cheap.

NEW BEDFORD IRON FOUNDRY,
New Bedford, Mass.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.

or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

TO LET.

The Engine Works at Newburgh, N. Y., at present occupied by Wm. Wright, is offered to let from May 1st, 1892.

The property consists of machine shop, foundry, boiler, forge and pattern shops with a full equipment of tools.

The works are located in the heart of the City and convenient to railroad and river transportation. For terms apply to

HOMER RAMSDELL,
Newburgh, N. Y.

WANTED.

Foundry Superintendent. Must be thoroughly conversant with the melting of iron, also the various mixtures for different kinds of work. Must have a thorough knowledge of molding, core making, &c. Also competent to manage workmen and arrange prices for work. No one need apply unless he can furnish strictly first-class references. Address "SUPERINTENDENT," P. O. Box 1165, New York, N. Y.

FOR SALE. WELL EQUIPPED Machine Shop and Fouudry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

P. O. BOX 1119, New York.

Wanted at Once for Cash,

Boiler Plate Vertical Punch,
Boiler Plate Vertical Shears,
Boiler Plate Hor. Punch,
} for 1¼ in. Plate.
44 in. Screw Cutting Lathe.
30 in. " " "
18 in. Stroke Slotting Machine,

CAMPBELL & ZELL CO.,
Baltimore, Md.

Wanted, Manufacturers.

FREE SITE, CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants*, in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties*. We are *not bound* to *any locality* and will give *unbiased information* on application.

Write for proposition blank.

AMERICAN LOCATING CO.

(INCORPORATED),
41 & 41A Nat. Ger. Am. Bank Bldg.,
St. Paul, Minn.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

$10 000 TO $100,000

In **CASH AND FREE SITE IN** the heart of the **COAL REGIONS** of **WESTERN PENNSYLVANIA** for a reliable manufacturing concern. Iron or steel industry preferred. **COAL DELIVERED BY THE QUANTITY AT LESS THAN ONE DOLLAR PER TON.** Write for particulars.

C. T. BEECKMAN,
136 Fifth Ave., Pittsburgh, Pa.

FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and Stove Plate. Correspondence solicited.

WM. D. BENNAGE & CO.,
2213-2215 Hamilton St., Philadelphia.

GREAT BARGAIN.

Large manufacturing plant, with three acres of land, at Pearl River, N. Y., 27 miles from New York City. Opposite Railroad Depot, two-story brick buildings, 300 feet long, with ample land for enlargement, with side track, &c. Well lighted all around; with 80 H.-P. engine and boiler, shafting and pulleys, iron melting furnace, cheap labor and freights. To be sold at a sacrifice to close an estate. For particulars apply to J. H. BRAUNSDORF, Executor, Pearl River, N. Y.

WANTED, Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired. "A. B.,"
office of *The Iron Age*, 146 Franklin St., Boston, Mass.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address

T. C. KERRICK,
Bloomington Ill.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points. ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.

OR CHAMBER OF COMMERCE BLDG, CHICAGO
THIRD NATIONAL BANK BLDG, CINCINNATI, O.

A MODEL AND MODERN

STOVE FOUNDRY

FOR LEASE OR SALE.

A Foundry consisting of molding room 120 x 145 feet, main building 50 x 160 feet, three stories high, engine and boiler room 25 x 50 feet, stock house 20 x 20 feet and supply and cleaning rooms 20 x 120 feet, covering in all about 34,000 square feet; the buildings are all of brick, steel roofed, and are situated at Clifton Forge, Virginia. They contain a large amount of machinery including a large lot of stove patterns especially designed for them, and with an expense of between $2000 and $3000, the plant could be put into full operation immediately.

This Foundry is most advantageously situated, being but three miles from the Longdale and Lowmoor Furnaces and but a short distance from the coal fields. Both pig iron and coal or coke can be laid down at the Foundry at the very lowest rates and a good market is ready for either stoves or the product of a general foundry business, with freight rates which will compare favorably with those of any other point. This plant will be leased at a nominal rental to reliable and responsible party who will operate it, with the privilege of purchasing in a stated period on liberal terms. Correspondence in this matter or a personal inspection of the plant is solicited. Address

LEWIS HARMAN,
General Manager, Clifton Forge, Va.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,
Suburban Traffic Agt., 317 BROADWAY, N. Y.

Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

MAHONING FOUNDRY AND MACHINE SHOP.
Danville, Pennsylvania.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

TO LET.

A few desirable offices on ground floor with steam heat, electric light and janitor's care. Ventilation perfect. Centrally located for hardware and kindred trades. Two sizes, viz., 9 x 11 and 9 x 15 feet. Prices, $25 to $35 per month. Apply at the

UNION NUT CO.,
107 Chambers St. and 91 Reade St., N. Y.

FOR SALE.

WAGON SKEIN PLANT.

LONG ARM AXLE PLANT.

Patterns, Machinery and Tools. Also Wagon Box Patterns.

THE JAMES L. HAVEN COMPANY,
57 Plum Street, Cincinnati, O.

FOR SALE.

35 lb. and 30 lb. T rails, second-hand, suitable for relaying; four miles with fastenings, by

MANOGUE-PIDGEON IRON COMPANY,
Memphis, Tenn.

FOR SALE.

One pair Howe Truck Scales, four beams, 34 feet long, weight 122,000 pounds. As good as new.

THE COLUMBUS IRON & METAL CO.,
Columbus, Ohio.

FOR SALE

A good new manufacturing business fully equipped, requiring only a limited capital. Address

GEORGE N. MORSE,
Meriden, Conn.

AN ESTABLISHED Business firm, with fine location and store, wish to add to their line the agency for some article that can be handled at a profit both from their store and through their travelers. BORDEN & SELLECK CO., Cleveland, Ohio.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish; no trade. For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

In a flourishing city in Illinois, a clean, neat stock of Hardware, Stoves and House-Furnishing goods. Stock will inventory $8000 or $9000. Builders' Hardware a very prominent department, together with Tin and Furnace work. Owner will assist buyer till fully posted and acquainted with customers. Address

"FLOURISHING CITY,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

THE NEW

ROUTE TO COLORADO.

First-class Sleeping Cars—Electric Lighted—run daily between Chicago, Omaha, Lincoln and Denver, via the Short Line of the Chicago, Milwaukee and St. Paul Railway—Chicago to Omaha—and the Burlington Route—Omaha to Lincoln and Denver. Leave Chicago 6.00 P. M., arrive Omaha next morning. Denver second morning for breakfast, face and hands washed, ready for business or pleasure. Time and money saved. All Coupon Ticket Agents in the United States and Canada sell tickets via the Chicago, Milwaukee and St. Paul Railway, or address

GEO. H. HEAFFORD,
General Passenger Agent Chicago, Ill.

WANTED,

Something to Manufacture.

A New York manufacturer of Light Hardware, having greater facilities than necessary for their present line, desires to add some specialty or patented article to be finished complete from raw material if necessary. Address "H. H.," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

STOCK OF HARDWARE

And Fixtures, all new and well assorted, invoicing about $8000, or can be reduced to suit purchaser. Located in West Duluth, Minn. A splendid opportunity to buy an established business in a growing manufacturing town. Sales last year, $40,000.

CHAPIN-WELLS HARDWARE CO.,
Duluth, Minn.

Business Chance.

Good complete Retail Hardware Stock for sale in one of the best localities in State of Connecticut. Value of stock $15,000 to $20,000. Possession 1st May. Enquire "CONNECTICUT," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

At West Superior, Wis., the best growing city in the United States, the best location in West Superior, the best and finest stock of hardware, the most elegant finished hardware fixtures in the State. Stock will invoice about $12,000, fixtures cost $1500. Owner has been in business 30 years and wants to retire from business and go abroad for rest and health. Any one looking for a location will find this a rare opportunity. For further particulars or information, address the owner, GEO. M. DRUM, West Superior, Wis.

WANTED.

To communicate with the owners of a modern Coke Blast Furnace, who are open to a proposition to move it to the best location in the country,

"COKE BLAST FURNACE,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE.

The stock and fixtures of a first-class hardware store doing a good business and nicely located. For further particulars apply to

BOX 233, Bristol, Pa.

IF FROM ANY CAUSE

You have goods to offer at specially low figures for **SPOT CASH**, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of **SPECIAL LOTS,**
75 Chambers St., New York.

Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO.
WHOLESALE
HARDWARE AUCTIONEERS,
13 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
Send for Catalogue.

143 Chambers St., New York.

THE NATIONAL CORDAGE COMPANY

NEW YORK, April 5, 1892.

The Board of Directors have this day declared the regular quarterly dividend of TWO PER CENT. on the preferred and TWO AND ONE-HALF PER CENT. on the Common Stock of this Company, payable May 2 next at the transfer office of the Company, 135 Front St., this city. The books will close April 15 and reopen May 3 next. CHARLES DAVIS, Treasurer.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

A ROLL TURNER that is familiar with modern methods and output, that is capable of suggesting improvements and laying out rolls for 10 in. to 16 in. trains for making guide, bar and flat work; references required; state age, experience and salary required. "16 TRAIN," office of *The Iron Age*, 16-102 Reade St., N. Y.

A MASTER MECHANIC and designer to take charge of the machinery of a large iron foundry and finishing works. Address, stating experience and terms "H. J.," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

YOUNG MAN, mechanical draughtsman; name, age and references, with idea of compensation. Address Box A, Pottstown, Pa.

EXPERIENCED and competent Chemist for blast furnace in Virginia; in making application please give reference and state experience and amount of salary required. Address "COMPETENT CHEMIST," office of *The Iron Age*, 96-102 Reade St., New York.

TRAVELING SALESMAN; must be first-class and experienced in selling nails, merchant iron and steel to the jobbing trade. Address "IRON MANUFACTURER," Box 694, Cincinnati, Ohio.

FOUNDRY FOREMAN immediately; work principally heavy rolling mill, engine castings and rolls; must thoroughly understand making chill and sand rolls and bring best of references; state salary expected. Address LOCK BOX 375, Pittsburgh, Pa.

TRAVELING SALESMEN who have had experience in the hot and cold roll steel business; state age, whether married or single, where recently employed and salary expected for first year. Address "HOT AND COLD ROLLED STEEL," Box 414, office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN to carry Shimer Patented Hollow Handle Post Spade as side line on commission. L. & R. WISTER & CO., Philadelphia, Pa.

AGENTS IN ALL PARTS of the country visiting the Hardware and Implement trade to appoint local dealers agents for a good line of goods; liberal commission; in answering state territory covered. Address OSGOOD & CO., Binghamton, N. Y.

SITUATIONS WANTED

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

PRACTICAL MECHANIC of long experience in the building of machinery of any class; or in the manufacture of metal specialties, tinware or otherwise, is open for an engagement to take charge. Address "HUSTLER," office of *The Iron Age*, 96-102 Reade St., New York.

AS SUPERINTENDENT of Wire Mill; all latest methods of handling the following thoroughly understood; galvanized wire, cloth and netting, brass, copper, iron and steel of every description, crucible and spring steel a specialty; every detail of wire nail business; mills failing to pay preferred; can build mills from foundation; unexceptionable testimonials furnished. Address "WIRE," office of *The Iron Age*, 59 Dearborn St., Chicago.

A GOOD, PERMANENT office position with any good manufacturing or wholesale hardware house; am a practical bookkeeper, stenographer, typewriter operator and all-round office man with six years' experience in the manufacturing and wholesale hardware business; best of references from former employers. Address "ZEAL," office of *The Iron Age*, 96-102 Reade St., New York.

BOOKKEEPER, A1, fifteen years' experience in large companies, desires position; can furnish very best city references. Address "A.," care Hardware Board of Trade, 4 Warren St., N. Y.

BY A PRACTICAL Millwright, experienced in all manner of work in wood and iron; nine years in present position; competent to take charge of any plant; the West preferred. Address "MILLWRIGHT," office of *The Iron Age*, 96-102 Reade St., New York.

SEAMLESS brass and copper Tubes, Locomotive and Marine Boiler Tubes, condenser Tubes, hollow and solid copper Rods, brass Rods, covering Hydraulic Rams; advertiser having twenty years' experience (fifteen years foreman) in the manufacture of the above, seeks engagement. Address J. GANNON, 15 Grosvenor Square, Lower Broughton, Manchester, England.

A MAN of ability and experience with large trade, now representing a sheet iron mill in New York City and State wishes to make a change. Address "B. B.," Box 421, office of *The Iron Age*, 96-102 Reade St., N. Y.

A FIRST-CLASS Mechanical Draftsman desires to change position. Permanent only. In or near Philadelphia preferred. Address "W. R.," office of *The Iron Age*, 230 S. Fourth St., Philadelphia.

A SUPERINTENDENT and Engineer will soon be available for responsible position in large manufacturing establishment; has had valuable and varied experience in designing, shop management and as superintendent; he has given particular attention to economical designs and methods of production and has had large personal observation, including that of professional visits to European countries. Address "E. D. B.," office of *The Iron Age*, 96-102 Reade St., New York.

BY A YOUNG MAN familiar with the hardware trade in Philadelphia and within a radius of 100 miles around that city, including Baltimore and Washington, the agency for several lines of hardware, cutlery or specialties of that nature, either on salary or commission, as may be agreed; unexceptionable references furnished. "HARDWARE," office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

BY A PRACTICAL MAN, a position as manager or assistant with a company manufacturing edge tools or forgings; willing to travel some, having had experience both abroad and in America, fully acquainted with the export trade; good references; age 36. Address BOX 4414, office of *The Iron Age*, 96-102 Reade Street, New York.

A YOUNG MAN of 25 holding position of head clerk in retail hardware and mill supply house and who thoroughly understands the business would like to make a change; best of references. Address LOCK BOX No 130, Willimantic, Conn.

BY THOROUGHLY PRACTICAL Bookkeeper and paymaster who has had long experience in black plate mills; is capable of taking entire charge of either office or mill; highest references and bond furnished. Address "BOOKKEEPER," Box 400, Pittsburgh, Pa.

MANY MANUFACTURING Companies now employ lawyers in the companies' own offices to draw contracts, &c., keep corporation papers properly and attend to some general matters, so as to prevent litigation and loss; I should like to accept such a position at a fair salary; am 31, eight years a lawyer; have some business experience and knowledge of accounts; own a good law library; best legal and general references. M. I. BROCK, 2025 Wallace Street, Philadelphia.

A GENTLEMAN, middle-aged, of long experience as accountant, correspondent, &c., of superior address, education, judgment, integrity, fidelity and ability, desires to represent as traveler or agent a reliable house, to introduce some article of machinery or construction; New York or East preferred. Address, Confidentially, BOX 272, New Rochelle, N. Y.

BY A GUIDE MILL ROLLER, who is a steady, intelligent workman on all kinds of guide mill work, iron and steel; also thoroughly understands the draughting and turning of rolls; can bring together a crew of steady and reliable workmen if wanted; best of references can be given. Address "GUIDE MILL WORK," office of *The Iron Age*, 96-102 Reade St., New York.

MECHANICAL ENGINEER, experienced in mill machinery, hydraulics and hydraulic machinery, machine tools, pumps, tanks, stand pipes and wrought iron construction, with good business training, accustomed to handle men, make estimates and superintend construction, desires position as chief engineer or superintendent; personal interview solicited. "HYDRO," office of *The Iron Age*, 96-102 Reade Street, N. Y.

POSITION of responsibility, by middle aged man, experienced in retail and jobbing hardware, paints, lumber, mill supplies, &c.; used to correspondence, accounts and care of help; best of references. Address "HARDWARE MANAGER," Box 47, office of *The Iron Age*, 96 to 102 Reade St., New York.

BY AN EXPERIENCED Hardware man, a position as buyer and managing man with some good house in that line of business. Address "B. & M.," office of *The Iron Age*, 96-102 Reade St., New York.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as superintendent of manufacturing establishment. Address "MULLACH" Box 33, office of *The Iron Age*, 96-102 Read treet, New York.

AS BLAST FURNACE Superintendent, by energetic young man who is experienced in the metallurgy and practical working of blast furnace on all grades of iron and spiegel; also in selection of material; is experienced chemist. Address "FIRE BRICK," Box 317, office of *The Iron Age*, 96-102 Reade St., New York.

MECHANICAL Engineer with exceedingly good experience in marine engineering, steam and hydraulic machinery, good shop experience, capable of handling men, desires position as assistant superintendent, manager or chief draughtsman in New York or vicinity. Address "MARINE," office of *The Iron Age*, 96-102 Reade St., New York.

A THOROUGH practical rolling mill manager or superintendent will be open for a position about May 1st; is highly indorsed for ability, sobriety and integrity. Address "IRON AND STEEL," P. O. Box 523, Pittsburgh, Pa.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

THE LATEST BOOKS.

Notes and Examples in Mechanics; with an appendix on the Graphical Statics of Mechanism. By IRVING P. CHURCH, C. E. This forms a companion volume to the writer's "Mechanics of Engineering" and contains various notes and many practical examples, both algebraic and numerical, serving to illustrate more fully the application of fundamental principles in mechanics of solids; together with a few paragraphs relating to the mechanics of materials and an appendix on the "Graphical Statics of Mechanism." 146 pages and plates, cloth.....$2.50

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Practical Carriage Building. A collection of articles compiled from those contributed to the columns of *The Blacksmith and Wheelwright* during the past few years, and covering the entire range of the art of carriage building from the plan of a vehicle to its completion, illustrating and describing fully the sectional parts. Edited by M. T. RICHARDSON. Beginning with some remarks on the proper timbers to use, plans for a carriage shop are described and illustrated; then come the tools, floor, bench and wood-working appliances necessary for a successful shop. Following this is a chapter on wheels and the repairing of wheels, and then are described and illustrated mortises, laps, gather of wheels, plumb spoke, etc. Illustrated, Vol. I, 224 pages, cloth.....$1.00

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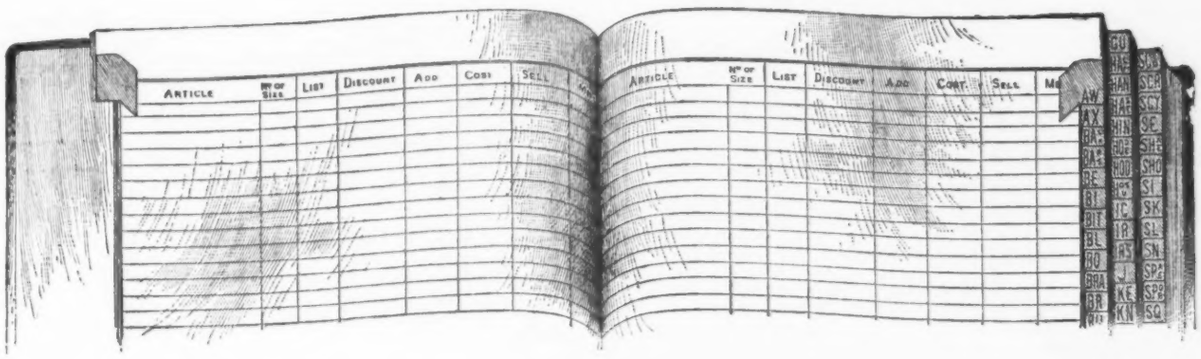
The Iron Age Hardware Price Book E,

WITH MULTIPLE INDEX (Patent Pending).



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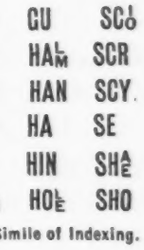

Fac Simile of Indexing.

THE IRON AGE STANDARD HARDWARE LISTS

FOR USE IN PRICE BOOKS.

Compiled by R. R. WILLIAMS, Hardware Editor of The Iron Age.

PRICE 25 CENTS.

This pamphlet contains the principal standard Hardware price-lists in as clear and compact an arrangement as possible, so as to permit their being advantageously cut out and inserted in the price book. In order to make them adapted to this use they are printed on thin and tough paper of fine quality and on only one side of the paper.

Saucepans and Round Boilers.

	Plain.	Turned.	Tin'd or En'd.
Pints.			
1	$0.30	.35	.39
1½	.32	.37	.44
2	.35	.39	.48
3	.42	.47	.56
Quarts.			
2	.50	.56	.63
2½	.53	.59	.68
3	.55	.62	.73
4	.60	.68	.84
5	.65	.75	.96
6	.70	.81	1.11
7	.75	.84	1.21
Gallons.			
2	.85	.96	1.31
2½	1.05	1.18	1.56
3	1.20	1.35	1.70

The success of the effort to give the lists in small space is illustrated in many of the lists, in which a clear and condensed arrangement is secured. For instance, the wrench list occupies but 3 inches by ¼ inch, while the list of Stove Hollow Ware, in very small space, gives the list prices on a large and important line of goods which often occupy several pages in catalogues. In several lists, such as Strap and T Hinges and Butts, a new arrangement is adopted, which is regarded as presenting these lists in a very convenient as well as condensed form.

As is obvious from the lists herewith reproduced, the shape and size of the different lists varies greatly, the aim being to give each list the smallest and most convenient arrangement possible. None of the lists are, however, more than 3½ x 6 inches in size, very few of them being as large as this and most of them very much smaller. In use it is intended that they shall be trimmed closely before they are inserted in price books, when they may be attached either by one edge close to the hinge of the book, as will, perhaps, be most convenient with the larger lists, permitting the use of the entire page for memoranda, or the smaller lists may be pasted on the page in connection with the entries in regard to discounts, freights, &c. Many of the lists are so compact in arrangement as when thus inserted to leave ample room for recording quotations

Stove Hollow Ware. Ground and Unground.

POTS, KETTLES, ETC. (CAST IRON.)

No.....	6	7	8	9	10	11
Pots.....	$0.65	.75	.85	1.00	1.25	1.75
Kettles.....	.55	.65	.70	.85	1.00	1.40
T Kettles.....	.75	.80	.90	1.00	1.25	....
Spiders.....	.27	.30	.35	.40	.50	.60
Griddles Round	.22	.25	.27	.30	....	....
" Long..	.40	.50	.60	.75	....	....

SCOTCH AND YANKEE BOWLS.

No....	1	2	3	4	5	6
Scotch Bowls..	$0.35	.40	.45	.50	.60	.70
Yankee Bowls.	.35	.45	.55	.65	.75	.90

Wrenches. Standard List.

Inches.	6	8	10	12	15	18	21
Black...	$9.00	$10.00	$12.00	$14.00	$24.00	$30.00	$36.00
Bright..	10.00	11.00	14.00	16.00	26.00	32.00	38.00

Some merchants use this pamphlet for reference, checking off invoices, etc., as it gives the leading lists in a more convenient form than they can otherwise be obtained. The lists are, however, intended primarily to be cut out and inserted in price books, and *can be used in connection with any of The Iron Age Hardware Price Books.*

Glue Pots. Tinned or Enameled

No. 4/0....	$4.50	No. 2	$8.40
3/0....	5.00	3	10.26
2/0....	5.50	4	12.42
0	6.00	5.....	14.58
1	6.75	6.	16.94

That the Standard Hardware Price Lists meet a want of the trade is evident from the fact that a new edition is already called for.

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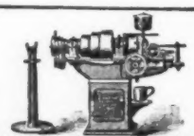

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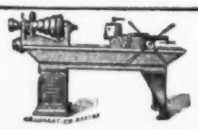

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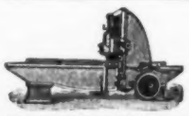

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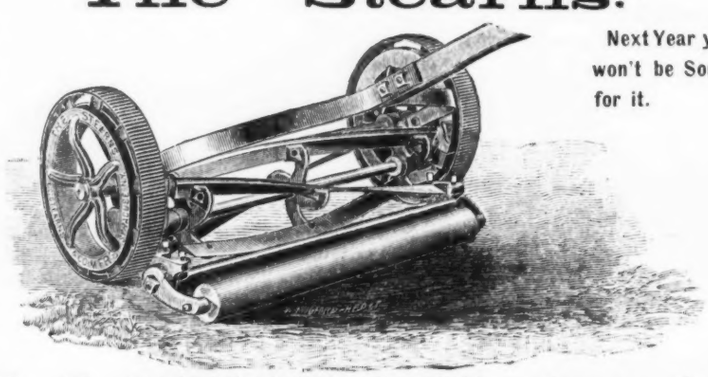

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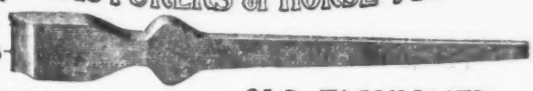

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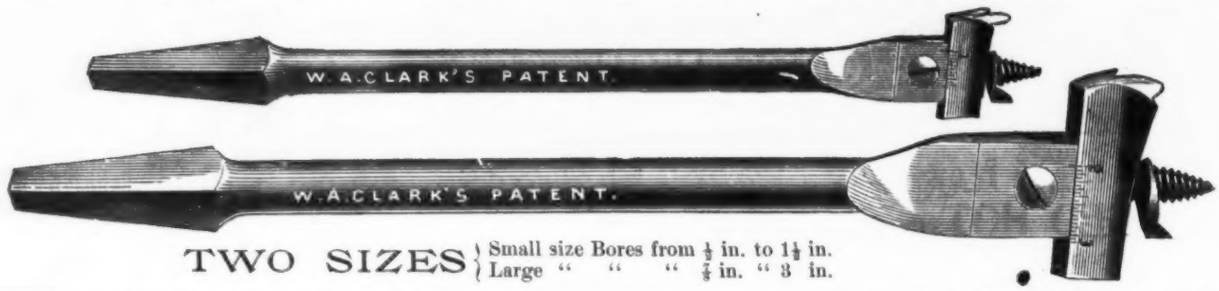

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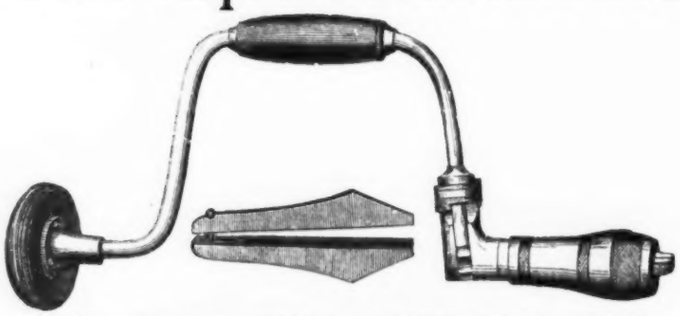

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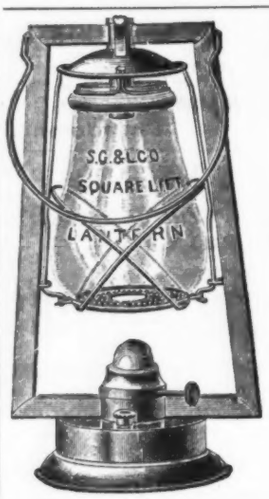

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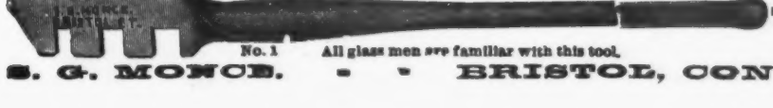

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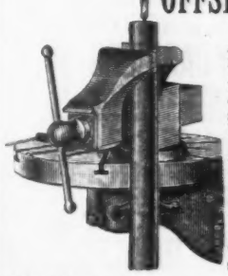

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Fig. 190.

Fig. 76.

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Fig. 209.

Fig. 381.

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TRADE MARK. A complete outfit. Easy to put up, always reliable and fully warranted to meet the wants of any farmer.

Simple, durable, powerful, easy to operate never affected by frost. **Patent GLASS VALVE,** will never corrode. Ask your dealer for our goods. Write for catalogue.

F. E. MYERS & BRO. ASHLAND, O.

SPECIAL FEATURES OF OUR LEVEL.

1. The greatest strength and durability attainable. 2. Entire glass exposed to view. Most convenient level made. 3. The only level really adapted to the rough use of masons. 4. Absolutely accurate and finely finished. Send for Circulars and Price-lists. **AKRON SPIRIT LEVEL CO., AKRON, OHIO.**

J. E. BULLARD, 80 Lake St., Chicago, Ill., Western Agent.

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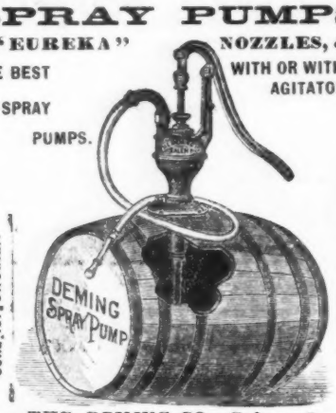
"EUREKA" THE BEST SPRAY PUMPS.

NOZZLES, &c. WITH OR WITHOUT AGITATOR.

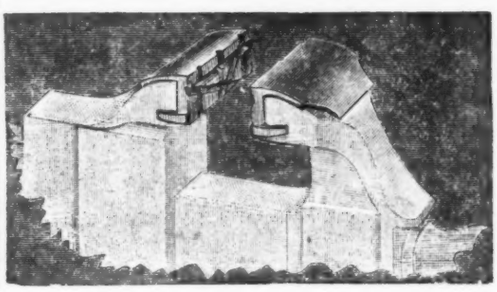


Send for Circular. WRITE FOR DISCOUNTS.

THE DEMING CO., Salem, O.

Western Agents: HENION & HUBBELL, CHICAGO, ILL.

Mention *The Iron Age.*



BINGHAM PATENT VISE JAW CAP

Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

3½ inch, ...per pair, 40 cents.
4 " ..... " " 50 "
4½ " ..... " " 60 "

PRENTISS VISE CO.

41 Barclay St., New York.

PARAGON BOX OPENER.

This is a Practical, Convenient and useful Tool. A Box Opener, Nail Puller and Nail Driver. Made of Steel, well tempered and strong. Endorsed by all who have used it, and proves a ready seller. **Price, Each, 75 Cents.**

Factory: New Haven, Conn. **PARAGON MFG. CO., 112 CHAMBERS ST., NEW YORK.**

SPRAYING PUMPS

AND THE

VERMOREL NOZZLE

For destroying lice, worms and fungus on plants, vines and trees. They are needed for destroying Hop Lice, Cotton Worms, Orange Scale, Tobacco Worms, Codling Moth, &c., &c. We make a specialty of spraying outfits and guarantee that ours are

Latest, Cheapest and Best

FIELD FORCE PUMP CO., - Lockport, N. Y.

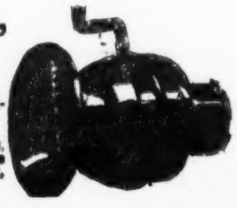
W. R. OSTRANDER & CO.,

195 and 197 FULTON ST., NEW YORK,

Manufacturers of

SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC, MECHANICAL & PNEUMATIC ANNUNCIATORS & BELLS.

Complete Outfits of Speaking Tubes, Whistles, Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



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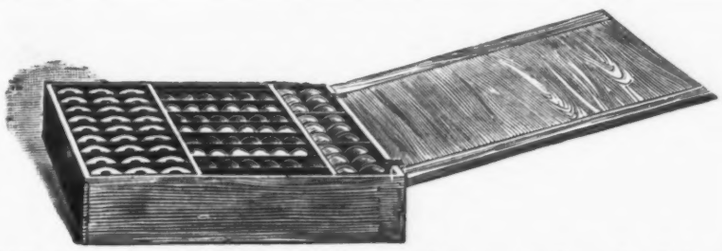
WARNER'S BURGLAR PROOF LOCKS.

LIGHTEST. SAFEST.



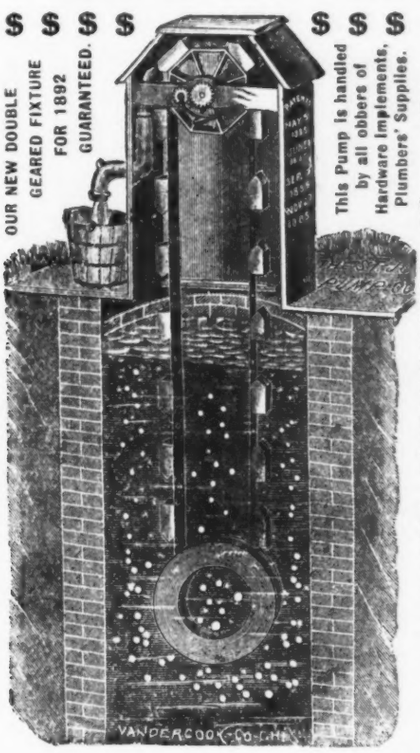
SEND for a sample of our solid braided cotton sash cord. It is more flexible and as durable as any sash cord made.

We would also call your attention to our extensive assortment of spool wire, which is the neatest box on the market and is indispensable to the retailer. **Send for Catalogue.**

TATE & CO., Malden, Mass.,

Manufacturers of Braided Wire Picture Cord, Twisted Galvanized Clothes Line, Sash Cord, Spool Wire, etc.

$ $ $ $ OUR NEW DOUBLE GEARED FIXTURE FOR 1892 GUARANTEED. $ $ $ This Pump is handled by all obbers of Hardware Implements, Plumbers' Supplies.



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"PERFECTION"

Water Elevator and Purifying Pump.

The storage of water in cisterns and open wells is the method largely adopted throughout this country by the people for Drinking, Cooking and Bathing purposes. We have had an abundance of rainfall, all wells and cisterns are full, and such being the case we all know the water contained therein becomes FOUL and STAGNATED during the months of July, August and September. If you will place a "PERFECTION" PUMP on your well or cistern we GUARANTEE the water to become and remain as PURE as a MOUNTAIN STREAM. Try it and be convinced. It is the simplest structure for raising water on the Continent—guaranteed not to freeze.

The Perfection

Having no Valves, Tubes or Plungers to get out of order, no Wood Tubing to Pollute the water, no attachment below platform, never has to be primed, packed or thawed out. Guaranteed never to freeze; easiest pump operated. Over 140 000 in daily use.

We are now striping and decorating the "Perfection" in the finest manner possible.

Agents wanted in every town. Dealers write your jobbers for quotations. Be sure you get "The Perfection," take no other. For full information, circulars, catalogues, etc., address the manufacturers.

ST. JOSEPH PUMP CO., ST. JOSEPH MO., U. S. A.

Angular Borer.

SOLE MANUFACTURERS OF

Backus Patent Bit Braces,

RATCHET BRACES, ANGULAR BORERS,

Adjustable Socket Wrenches and Breast Drills.

Write for 1892 Catalogue and Price List.

Adjustable Socket Wrench.

BACKUS MANUFACTURING CO.

WILLIAMSPORT PA.

The HENRY C. HART MFG. CO.,

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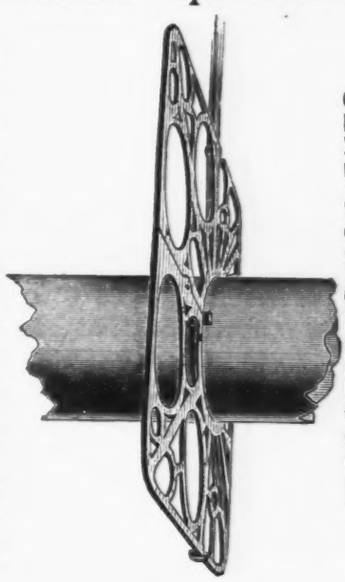
MANUFACTURERS OF

Hardware Specialties.

STANDARD STOVE PIPE SHELF.



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No More Leaky Sky Lights

Or Slipping and Breaking of Glass in Green Houses or Farmer's Sash. You can save money and glass by using the

PATENT GLAZIER Twin Points.

THESE POINTS are far superior to the old mode of setting glass, as they will hold each pane in place, preventing the glass from slipping and causing binding and cracking. Each box contains 500 rights and 500 lefts. We also make a tool for driving the points. **Price, 35c a Box. Driver, 15c. A Liberal Discount to the Trade.**

These points are kept by all prominent Hardware, Paint, Oil, Seedsmen, and Florist Supply Stores in the country. If you do not find them, send postal for a free sample, or send 60 cents for 1 package and 1 driver by mail, post paid to any part of the U. S.

H. W. EAMES CO., Milford, Mass.,

JESSE JONES & CO.,

HARDWARE SHELF BOXES

Made of Wood. No screws or nails used to work out and cut your shelving.

615 Commerce St. Phila.

Send for circular and list of references.

HENRY DISSTON & SONS

(INCORPORATED.)

KEYSTONE

Saw, Tool, Steel and File Works,

PHILADELPHIA, PA.

All goods bearing our brand are fully warranted.

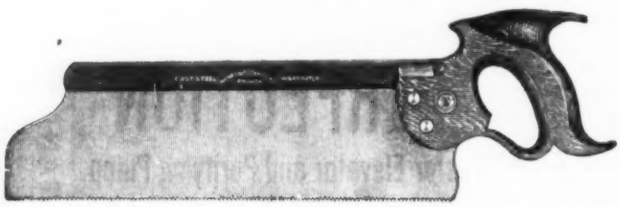
Solid Shank Cast-Steel Garden Trowels.

No 4 Double Edge Pruning Saw.

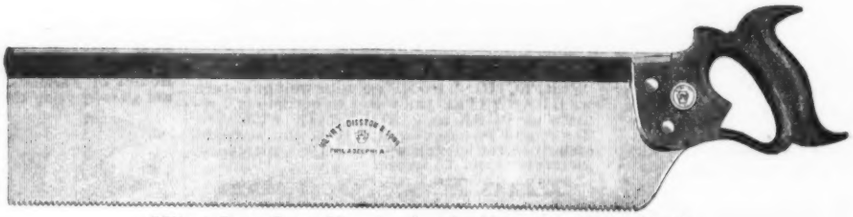
"California" Pruning Saw.

No. 7 Cast-Steel Pruning Saw.

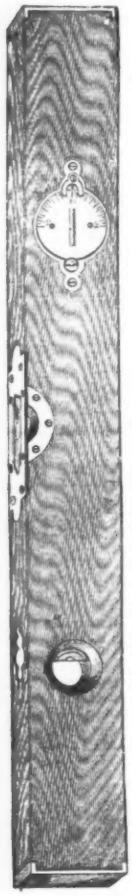
"Little Giant" Pruning Hook and Saw. The knife and saw are made of the best cast steel.



No. 9 Improved Back Saw. Apple Handle with Thumb Piece.



Mitre Box Saw No. 4. Apple Handle, Steel Back.



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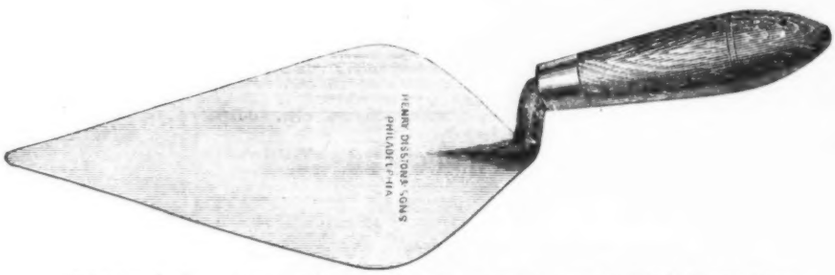


Disston's London Pattern Brick Layers' Trowel. Best Cast Steel, finely tempered and ground.

"Samson" Tree Planter and Post Hole Digger.

Send for new edition of "Lumberman's Hand-Book," a complete treatise on saws, mailed free.

E. C. ATKINS & CO., Indianapolis, Indiana.

SILVER STEEL DIAMOND CROSS-CUT.

We are the sole manufacturers of Silver Steel Saws, and enjoy the distinction of not only having first introduced the best Saws, among which are the Champion, Diamond and Dexter, but of improving and maintaining the quality of Saws to a degree which challenges comparison.

ATKINS'

Cross-Cut, Circular, Band and Gang

SAWS

Are Everywhere Recognized as the

Standard of Excellence.

Western agency for Tanite Emery Wheel.

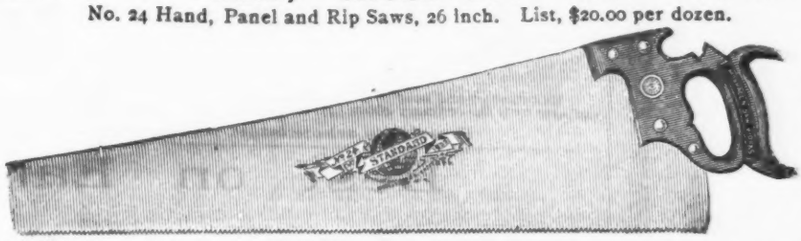
Ground Substantially uniform gauge on the toothed edge, and any gauge required on the back.

ESTABLISHED 1853.

MANUFACTURERS OF HAND, CROSS-CUT AND WOOD SAWS.

No. 24 Hand, Panel and Rip Saws, 26 inch. List, $20.00 per dozen.

Extra Thin Back.
Patent Handle.
Hollow-Back Blade.



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Superior Filing.

This is the best and cheapest saw made for the mechanic's use. It is fully warranted and will outlast any other saw on the market.

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Adv se where you saw this invitation. Send for the Simonds Sor-cerer; it will amuse you; Sent gratis.

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Pat. Wire Cutter AND PLIER COMBINED.

Specially Adapted for Use on Wire Fences.

Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCR EW TAPS PIPE TAPS and REAMERS.

Price List on Application.

Yacht AND Boat Hardware.

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"Conroy" Refrigerator Door Fasteners.

LIGHT BRASS CASTINGS

Pat. Dec. 15, '85. MADE TO ORDER.

THE STUART & PETERSON CO.
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Manufacturers of

Hollowware, Chemists' Goods, Ice Cream Storage Cans, Corridor Spittoons, Enamelers and Tinners' Specialties. Goods to order.

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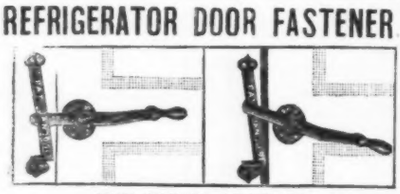

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For Sale by DAVID WILLIAMS, 96-102 Reade St., N. Y.

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Medals Awarded at the following Expositions:

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For Superiority.

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Manufacture and keep in stock a full line of FILES and RASPS only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.

Superiority acknowledged wherever used, sold or exhibited.

Best on Earth.

CHELSEA HAND-CUT RASPS.

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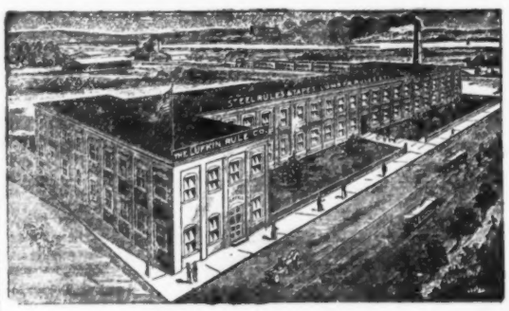
WESTERN FILES · WARRANTED SUPERIOR QUALITY · WESTERN FILE CO. LIMITED · BEAVER FALLS PA

Knight's Patents and Class Improved Duplex Saw Mill Dogs.

MADE ONLY BY

CANTON SAW CO., Canton, O.

For Sale by Dealers and Saw Mill Builders.



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STEEL RULES,
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We are the largest manufacturers of this line in the country and make the best goods.

Our large factory and our increased facilities enable us to serve our customers better than ever before.

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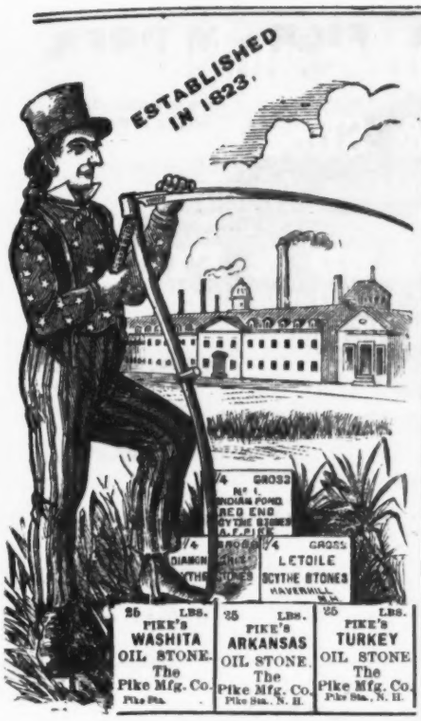

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For Stone of all kinds to Sharpen Edge Tools.

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Of superior quality, and in any quantity, shipped promptly, or made on your premises by contract. Write for prices on Hoops, Heading and Staves.

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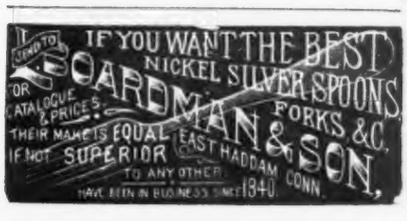

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SHOULD HAVE THE

TAINTOR SAW SET IN STOCK.

GOOD MECHANICS EVERYWHERE APPROVE IT.

Do not force your best customers to send to us for this tool. We prefer to have you do the business and make the profits. But we say to all mechanics, if your hardware dealer will not get it for you we will send it post paid for the retail price. For terms, &c., address

Taintor Manufacturing Company,

WIEBUSCH & HILGER, Ltd., Sole Agents,

84 and 86 Chambers St., New York.

From The Cleveland (Ohio) Leader,

OF MARCH 25th, '92.

A PATENT SPRING CURRY COMB.

F. E. Kohler & Co., of Canton, filed a bill of complaint yesterday in the United States Circuit Court to enjoin the George Worthington Company from selling spring curry combs manufactured by the Spring Curry Comb Company, of South Bend, Ind. The bill sets forth that F. E. Kohler & Co. are the owners of letters patent No. 220,986, issued October 28, 1879, to Paschal Plant, of Washington, for an improvement on curry combs. This patent, it is claimed, is being infringed by the George Worthington Company in the sale of combs manufactured for them by the Spring Curry Comb Company.

CAUTION.

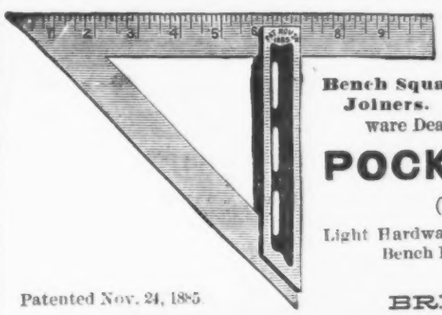
Comb is secured to us by Letters Patent No. 464,773, dated December 8th, 1891, and we have secured control of Patent No. 220,986, dated October 28th, 1879, issued to Paschal Plant, together with all accrued claims for infringement of said Letters Patent. We hereby CAUTION all parties against MAKING, SELLING or BUYING Curry Combs that in any manner infringe these Patents. The said Patent No. 220,986 is the BOTTOM PATENT to FLEXIBLE or SPRING Curry Combs. The "claim" thereof reads as follows: "As a new article of manufacture, a flexible Curry Comb formed of a toothed strip of metal or other suitable material, without a plate or back, and with a suitable handle attached directly to the strip, substantially as described." Parties MAKING, SELLING or BUYING FLEXIBLE or SPRING Curry Combs not licensed by us under the above-mentioned Patent are liable to damages, and we shall proceed against them as fast as possible.

NOTICE.

We have licensed the DECKER MFG. CO., of Keokuk, Ia., to manufacture their Spring Comb known as the "Arc" or No. 15 under the above named patent No. 220,986.

F. E. KOHLER & CO., Manufacturers of Hardware Specialties. **Canton, Ohio, U. S. A.**

THE HATCH & HOLMES MFG. CO.,



Patented Nov. 24, 1885

Manufacturers of

FOX COMBINED SQUARE.

Bench Square, Indispensable to Carpenters and Joiners. Always ready for use. For Sale by Hardware Dealers or sent, prepaid, by mail for $1.00.

POCKET CUTLERY (brand)

(THE HATCH CUTLERY CO.)

Light Hardware, Small Tools, Dies, Novelties, "Power" Bench Drills, Composition Metal, Bronze and Brass Castings.

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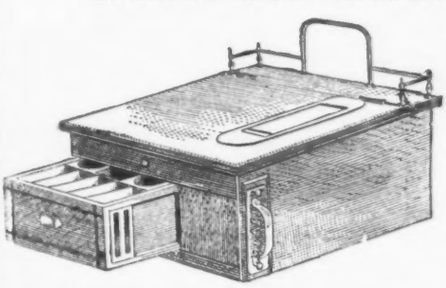

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MANUFACTURERS OF

The Lighton Automatic (Nickel-in-Slot) Lifting and Grip Machines,

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TRADE MARK

John Wilson's Butchers' Knives and Steels,

Skinning, Sticking, Farriers' & Shoe Knives,

Have established and maintained their reputation, for superiority, against all Competitors, from

THE YEAR SEVENTEEN HUNDRED & FIFTY,

and are still in increasing demand. As in the past, it is the unalterable

DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.

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These goods have fully maintained their reputation as the best cutlery in the world for over

ONE HUNDRED AND FIFTY YEARS.

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Sole Agents for the United States,

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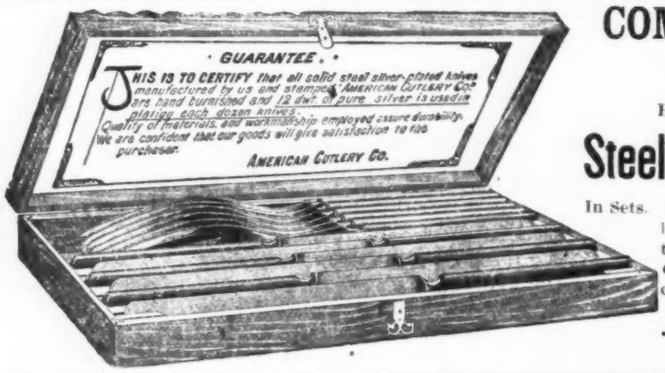

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In Sets. Be ready to place your orders. You'll miss an opportunity of a lifetime if you are not. Our goods go out as fast as we can make them. In fact, you better not wait for him. *SEND IN YOUR ORDERS BY MAIL*, and examine the whole lot when they come. We are not afraid of the result.

American Cutlery Co.

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Established 1836.

ALFRED FIELD & CO.,

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IMPORTERS OF

HARDWARE, CUTLERY, GUNS, ANVILS, CHAINS, FILES.

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Send for Rodgers' New Illustrated Catalogue.

INTERCHANGEABLE
LOCK-CORNER SHELF BOXES.
Screw Cases, &c.
FOR THE HARDWARE TRADE
A. H. GREEN,
22 Park Place, New York.

HIGHEST AWARD PARIS EXPOSITION, 1889.

L. & I. J. WHITE, BUFFALO, N. Y.

MANUFACTURERS OF **EDGE TOOLS.**

Coopers', Carpenters' and Ship Tools, Plane Irons, Cleavers, &c. Full Line Chisels.

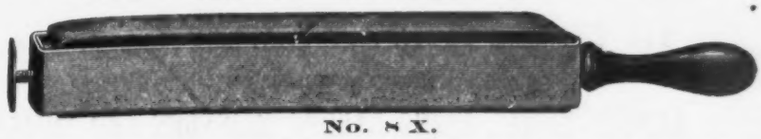
Finest Quality Steel. Temper AND Finish Unexcelled.

PRICES ATTRACTIVE. See Catalogue.

SOUTHINGTON CUTLERY CO., SOUTHINGTON, CONN.

J. R. TORREY & CO., Worcester, Mass.

New York Office: 85 Chambers Street.



No. 8 X.

The TORREY RAZOR STROPS are known the world over as the standard for excellence in setting a fine edge. We manufacture and carry in stock more than 150 styles.

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BUCK BROTHERS' EXTRA

BUCK BROTHERS, MILLBURY, MASS.

The Most Complete Assortment in the U. S. of

Shank, Socket Firmer and Socket Framing Chisels.

PLANE IRONS.

CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark also, "Riverlin Works."

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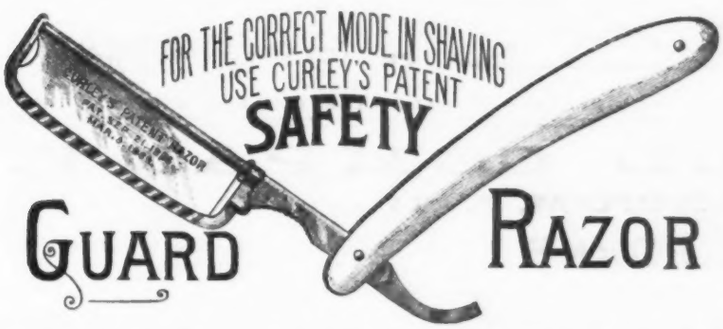

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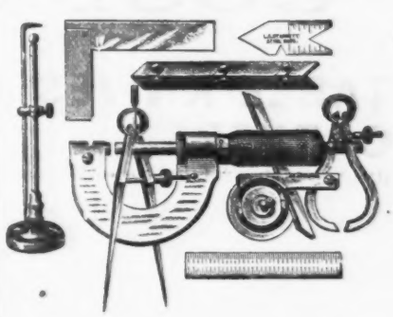

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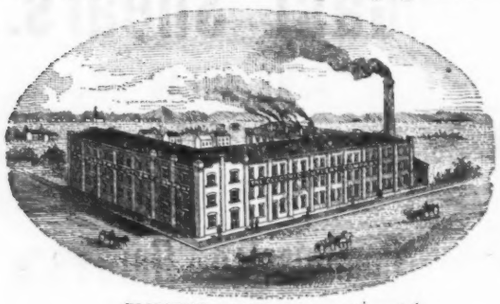

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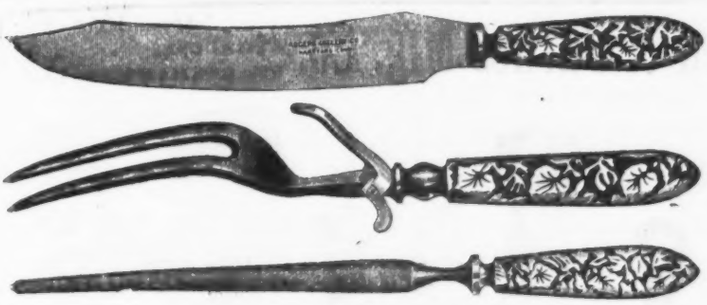

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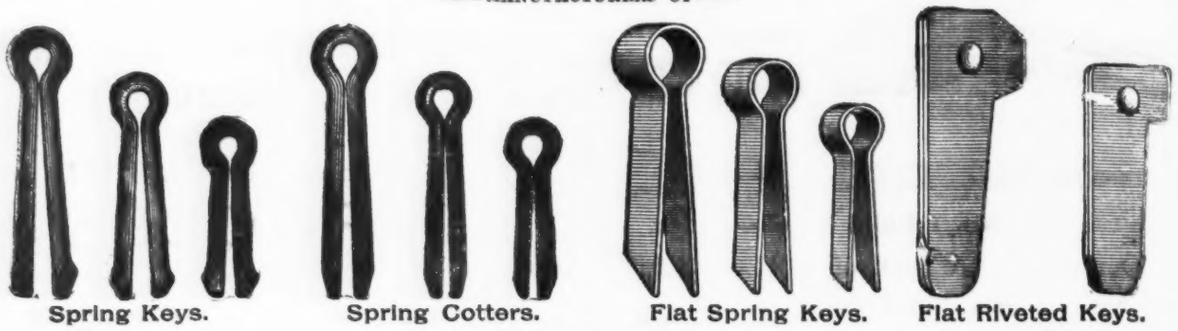

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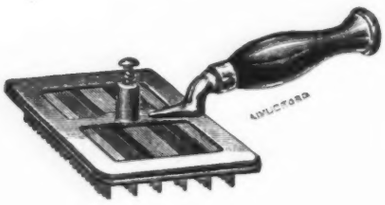

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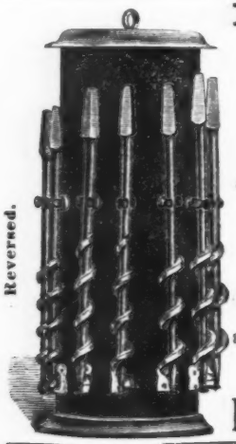

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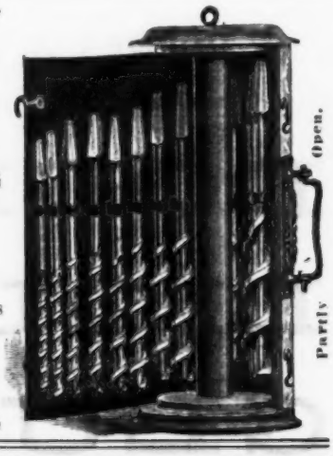

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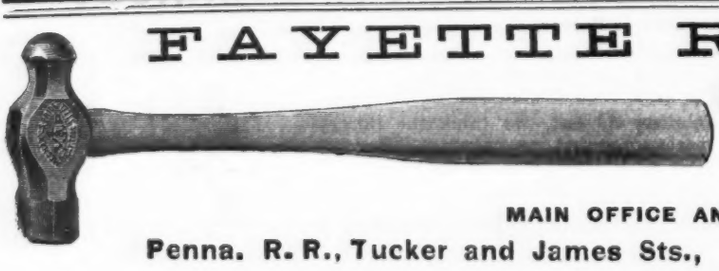

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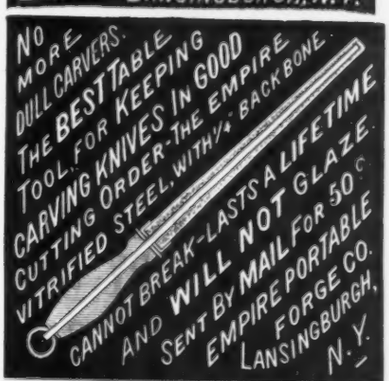

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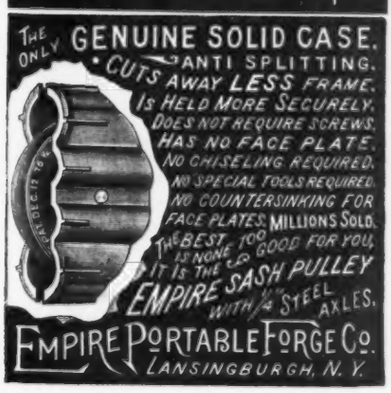

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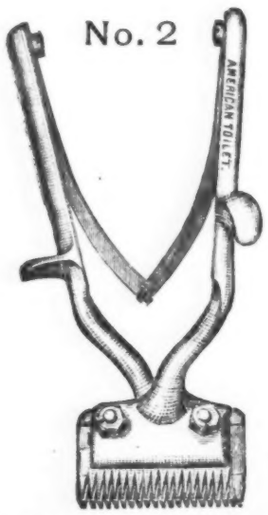

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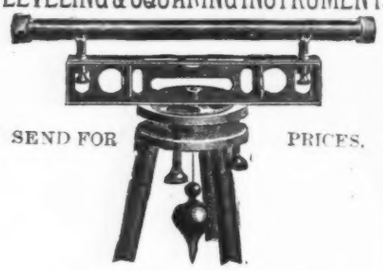

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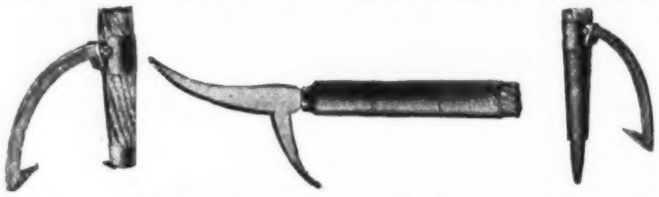

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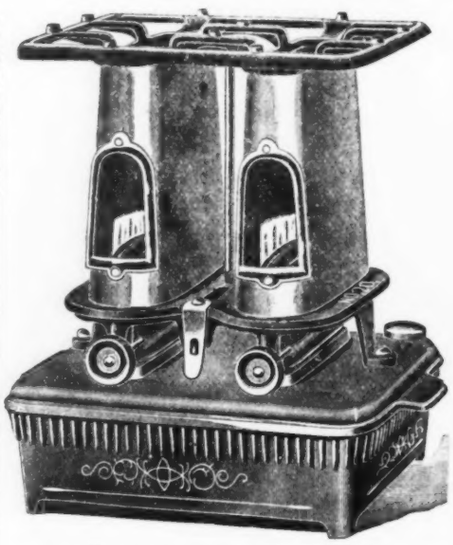

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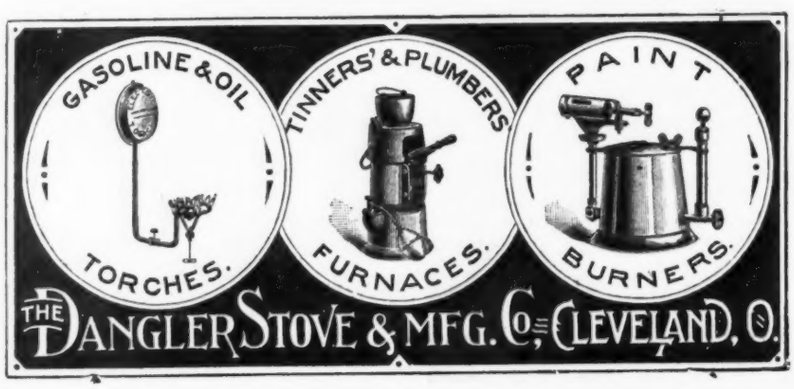

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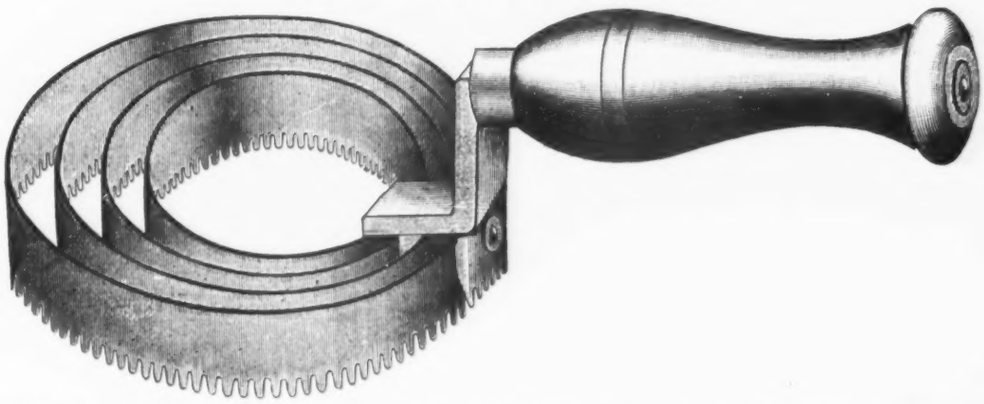

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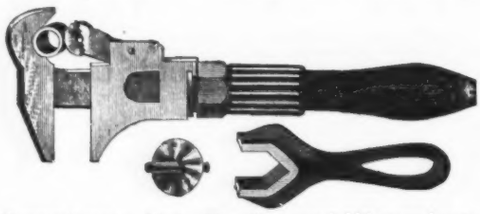

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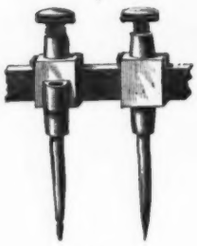
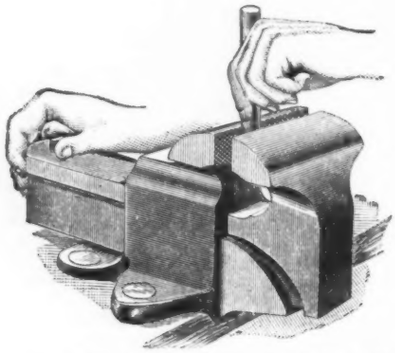


Chaplin's Patent Iron Planes, Corrugated Bottoms, Checkered Rubber Handles.



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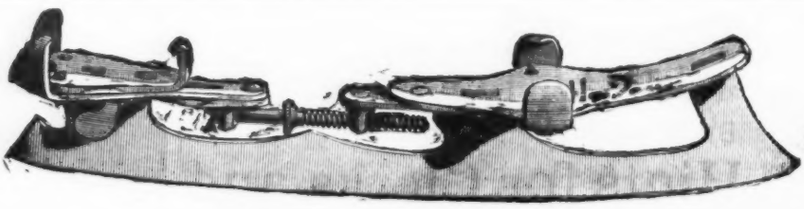
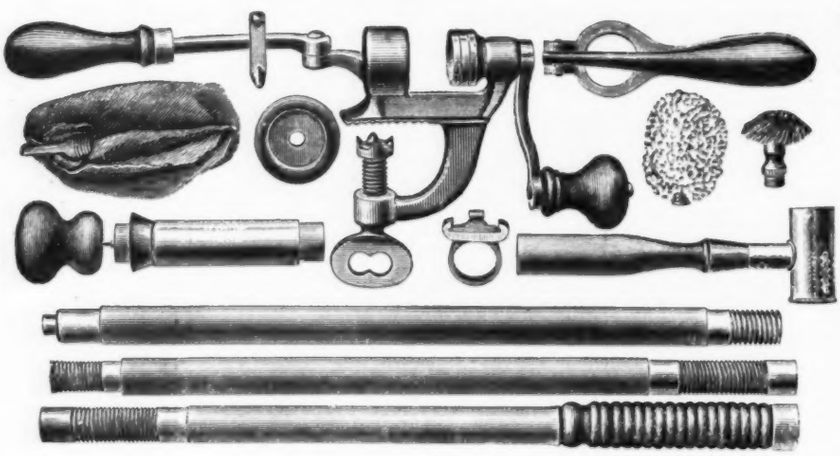


ICE SKATES

Gun Implements.



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Purchasers of the Glue Business of The Le Page Co.

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JOHN J. TOWER, of Tower & Lyon, New York, President.

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BLUE IMPROVED PROCESS LABEL

The Improved Process Glue Co., having purchased from The Le Page Co., all its patent rights, formulas, glue stock and material, and having secured control of its glue factory, machinery, etc., will continue the manufacture of Liquid Fish Glues in all the various grades heretofore offered by The Le Page Co., under the personal supervision of Mr. WM. N. LE PAGE, and under the Improved Process Patent issued October 26th, 1886. As is well known, the Improved Process by which these goods are made assures the highest strength with thorough uniformity as to quality, consistency and color. We call special attention to our **Improved Process Family Glues,** neatly put up for family use, and also to our **Improved Process Carriage Glue for wood-work,** put up in every variety of size and style. This Carriage Glue is undoubtedly the strongest and best glue for every variety of cabinet and wood-work, and has earned its high reputation. All our canned glues are put up with the **new patent cap** or fastening, patented January 22d, 1889, which has proved a great convenience and success. Our glues will be readily identified by our characteristic **Blue Label,** and the Trade-Mark shown at the head of this page. Send for Price-List. Messrs. TOWER & LYON will have charge of our New York office. Very truly yours,

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This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is especially adapted to farmers' use in building Wire Fence, &c.

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FOURTH.—We can cut Barbed Wire, Barb Belt or any kind of Wire used for Fencing purposes. We also claim that we have the only Plier made that the Cutting Jaws cannot be broken.

By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.

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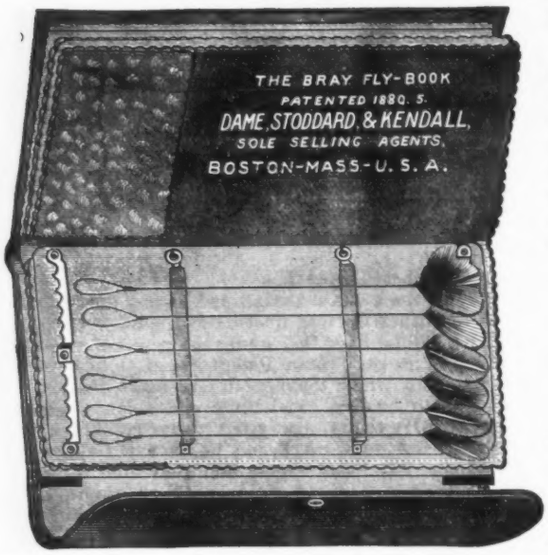

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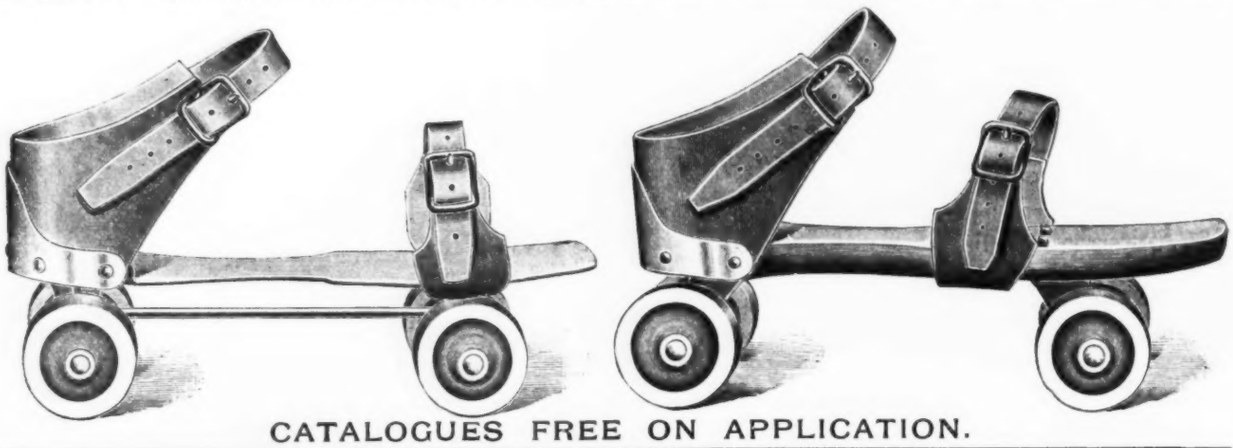

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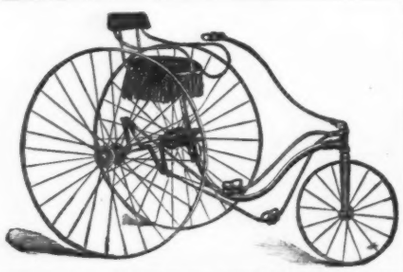

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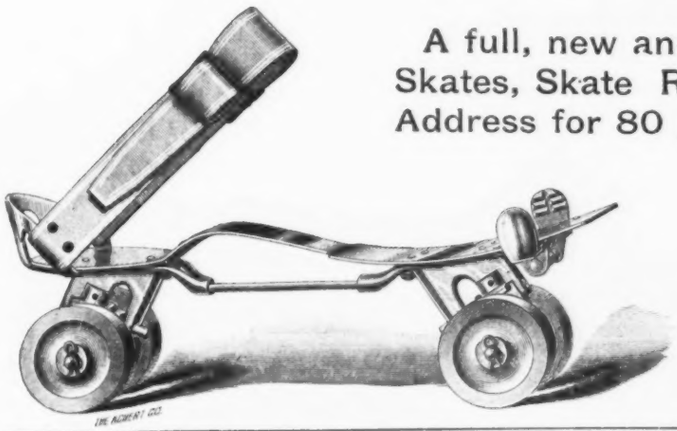

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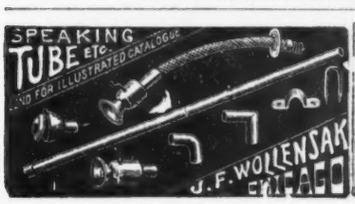

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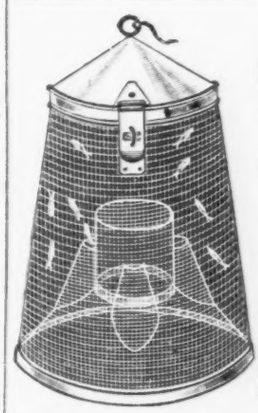

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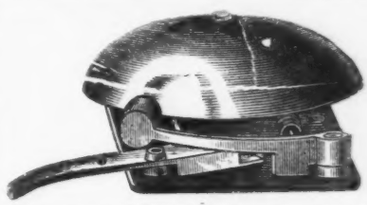

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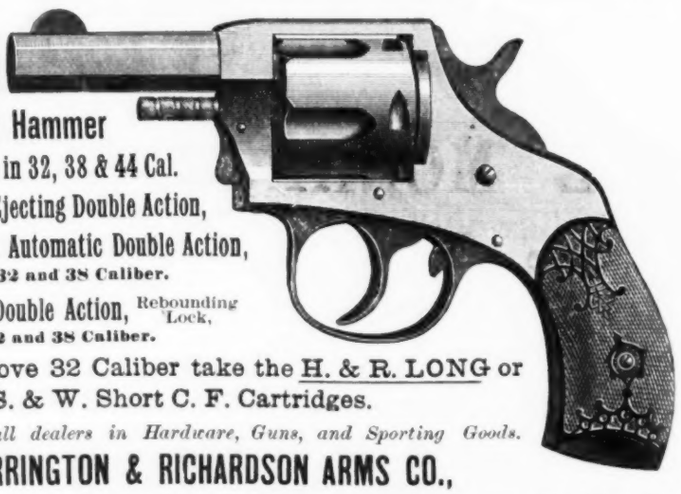

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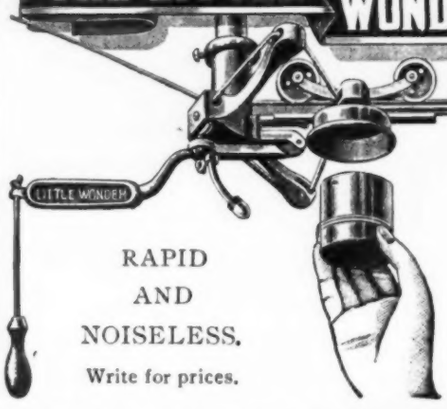

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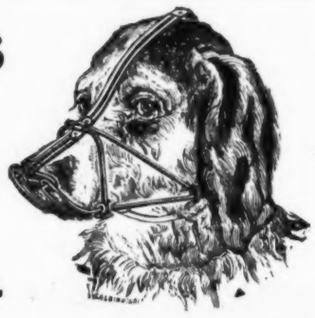

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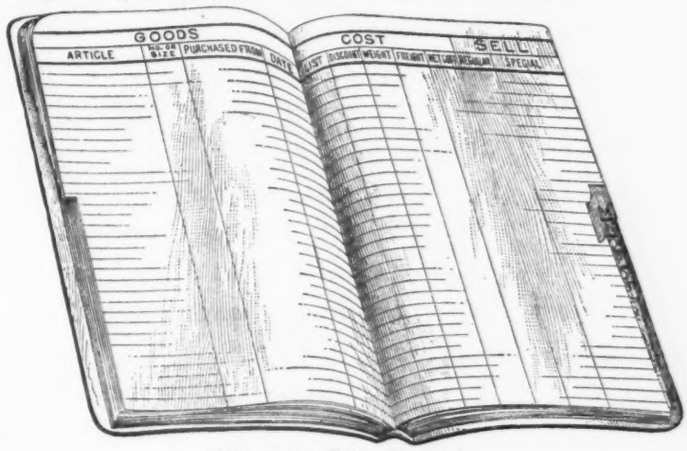

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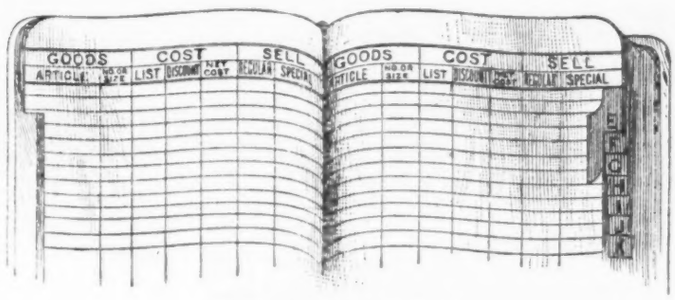

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In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

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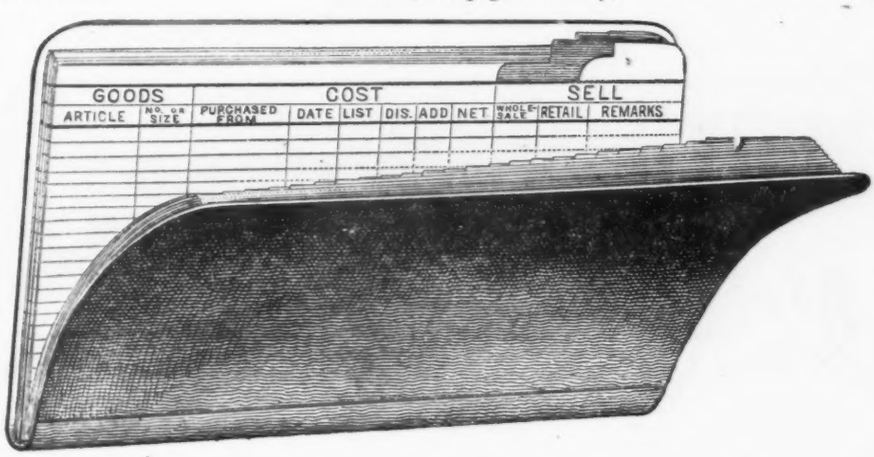

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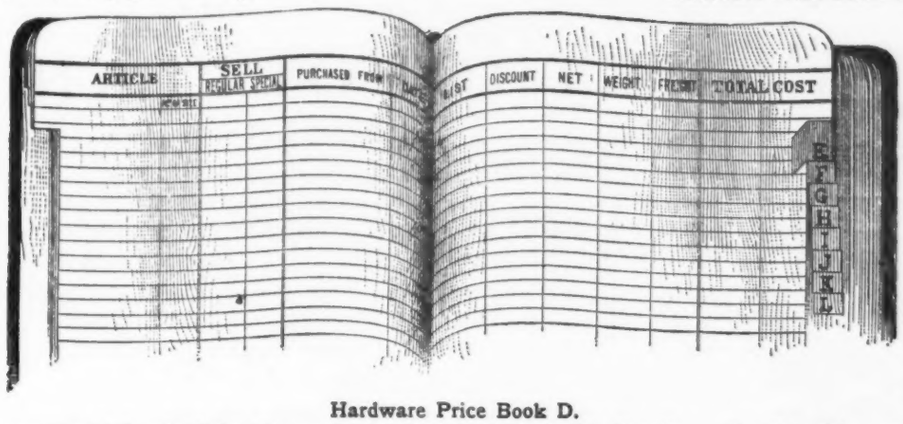

Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction. Size 5¼ x 8 in.; grain seal leather.

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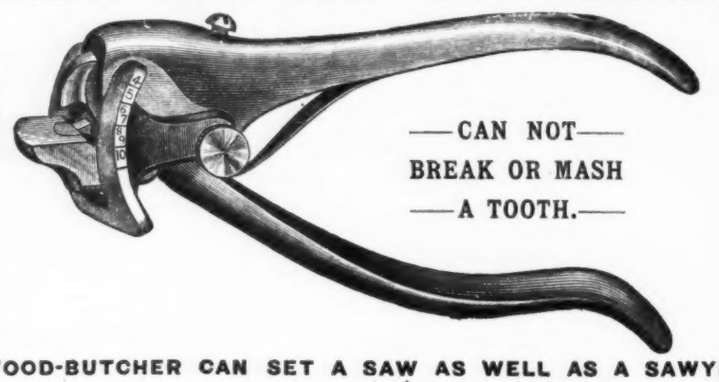

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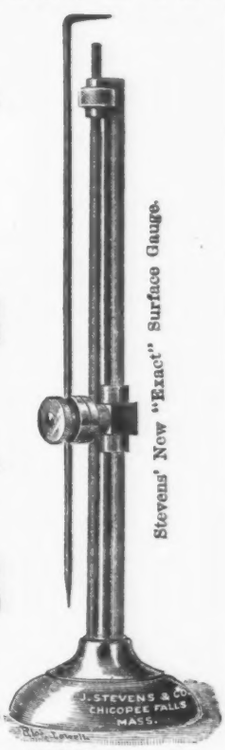

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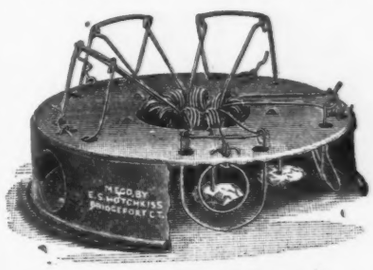

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PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a **guarantee that they cannot break, bend or warp.** An important feature also is that they are made **without rivets,** and **cannot leak** or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,
North 11th and Berry Streets, Brooklyn, E. D., New York.

IT COSTS NOTHING

to send for our illustrated price-list, and your catalogue files are incomplete without it. Write to the Factory, Montpelier, Vt., or to our Chicago store, 68 Lake St.

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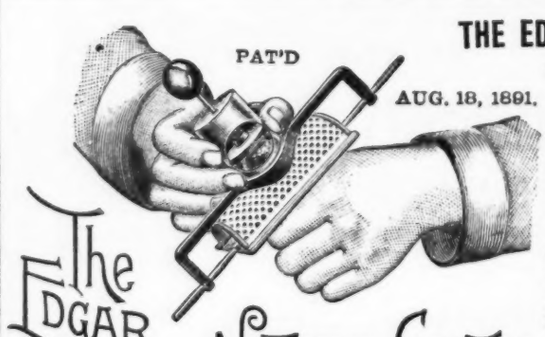

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POSITIVELY THE ONLY GOOD NUTMEG GRATER EVER MADE.

It is the old-fashioned Nutmeg Grater, with a carrier for HOLDING the Nutmeg, so attached as to move freely, forward and back, and from side to side, preventing the grated Nutmeg adhering to the surface of the Grater and bringing every part of its surface into use. Using this Grater, the Nutmeg can be grated to the merest shell without injury to the fingers or nails or dropping the Nutmeg. Its simplicity commends it. It is durable and economical and retails for 20 and 25 cents each. Liberal discount to the trade. Ask your jobber for the EDGAR NUTMEG GRATER.

The EDGAR NUTMEG GRATER

EDGAR MFG. CO.,
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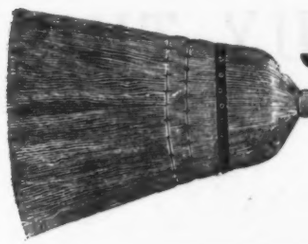

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BROOMS AND BRUSHES OF ALL KINDS.

Those of the Heavier Work a Specialty.

FOR RAILROAD, SHOP, WAREHOUSE, STREET, STABLE, BLOOM, CHILL, CASTING and MOULDERS' BRUSHES, &c., &c.

CHEAP EGGS SOON!

This new way of cooking eggs (by steam) is becoming very popular.

The best is none too good for people now-a-days, especially when half a dollar will obtain it. Be sure and have some **Buffalo Steam Egg Poachers** always on hand, so not to disappoint customers.

No. 1, Plain, $6.00 per doz.
" 2, Retinned, 9.00 "
Discount, — per cent.

SOLE MANUFACTURERS,

SIDNEY SHEPARD & CO.,

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A DIFFICULT PROCESS MADE EASY

THE BUFFALO STEAM EGG POACHER

POACHES EGGS BY STEAM.

WHEN READY FOR THE TABLE THE EGGS ARE OF UNIFORM SHAPE AND INVITING APPEARANCE.

MAY BE TRANSFERRED TO TOAST OR PLATE WITHOUT DANGER OF BREAKING.

Mrs. Gen. Lew Wallace Says:

"Lifting the cover discloses the delicate morsel, the yolk gleaming in soft color through a cloud of transparent whiteness. Have ready the buttered toast; the eggs slip each from its own little cup easily as from the parent shell: a dish fit to set before a king. Easy to have a delicious luncheon with the aid of the bright utensil which makes cooking so easy, it seems to act with its own intelligence. In the sea of trouble awaiting the young housekeeper pushing out into unknown depths, the Buffalo Steam Egg Poacher will be found a sure thing to rest upon when all else fails."

C. SIDNEY SHEPARD & CO., Chicago, Ill,

COMING RIGHT ALONG.

OFFICE OF
K. FITCH & CO.,
Hardware, Stoves, Tinware, etc.,
Kansas City, Mo., Jan. 15, '92.

The Sun Stamping Co., Kalamazoo, Mich.

GENTLEMEN:—Yours of the 11th, rec'd and contents noted. In reply, say, that The Morgan Broilers we sold have given so far as we have learned, good satisfaction—*not any complaint.* We have been using one in our house for more than a year, and we could not be induced to part with it for any reasonable consideration. We find it **DOES** the work as represented, when instructions are followed. It **DOES** make meat juicy and tender, and for the purposes for which it is intended, we believe it to be the most economical piece of furniture we have in the house. * * *

Very Respectfully,
K. FITCH & Co.

Perhaps there is a gentle hint here for other dealers. The "moral" would be, order a sample lot and be convinced. Unless there is gain in the transaction for you, there is none for us. Once a customer—"always."

The Morgan specialties in tin and sheet metal are manufactured solely by

THE SUN STAMPING CO., - - KALAMAZOO, MICH.,
430 to 460 N. PITCHER ST.

ELIZABETHPORT CORDAGE CO.

Manufacturers of

ROPE AND BINDER TWINE

46 South Street, New York.

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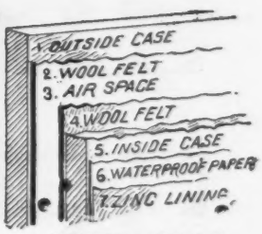

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SEVEN WALLS for insulation, as shown in this illustration.

The New Patent Air-tight Horse Shoe Lock, as shown in this cut. Patent Arched Center, False Bottom for Doubly Cooling the Air and Numerous other Improvements which make the GLACIER as far ahead of other Refrigerators as the electric light is ahead of the candle.

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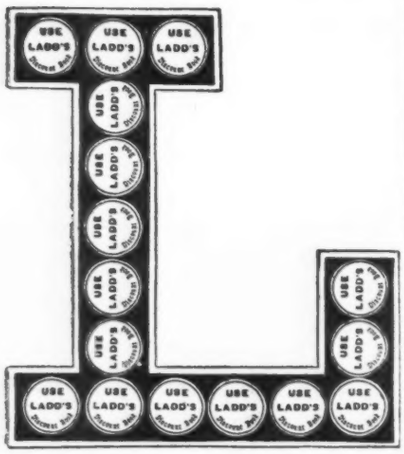

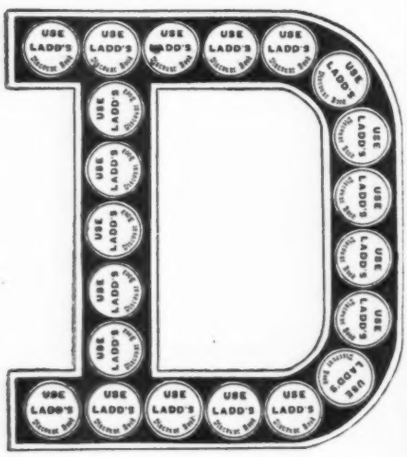

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in use. A true testimonial to its merits,

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Are the product of the

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ALL JOBBERS OF TINWARE AND HOUSE-FURNISHING GOODS.

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OF ROANOKE, VA.

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A copy will be furnished without charge to any house whose purchases from us during the year 1891 amounted to $100 net, and will be sent with the first goods ordered, or by express, not prepaid. To others we make a charge of $5.00 per copy, which amount will be deducted from account as soon as same amounts to $50.00 net. The book is too large to be sent by mail.

THE NORWICH LOCK MFG. CO.,

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Waddel's Improved No. 1050.

Size of Mill Box, 6x6x4½ in. high.
Castings Copper Bronzed and Lacquered.
Large Retinned Hopper with Gilt Tin Base.
Hardwood Varnished Box. Large Grinders, same as used in all our Mills.

WE MAKE A MILL A MINUTE, WITH A TIN CUP IN IT.

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"THE WEISELL."

One doesn't have to when using "The Weisell." It operates so easily that a child 10 years old can work it and not overexert itself.

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A VARIETY OF DESIGNS AND ALL STYLES OF FINISHES.

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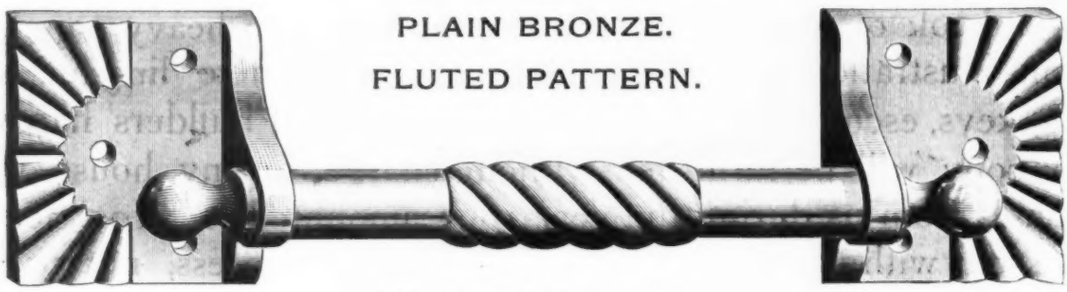

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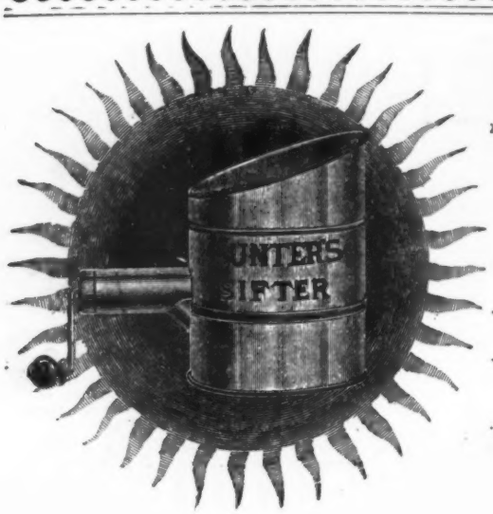

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MANUFACTURED BY THE

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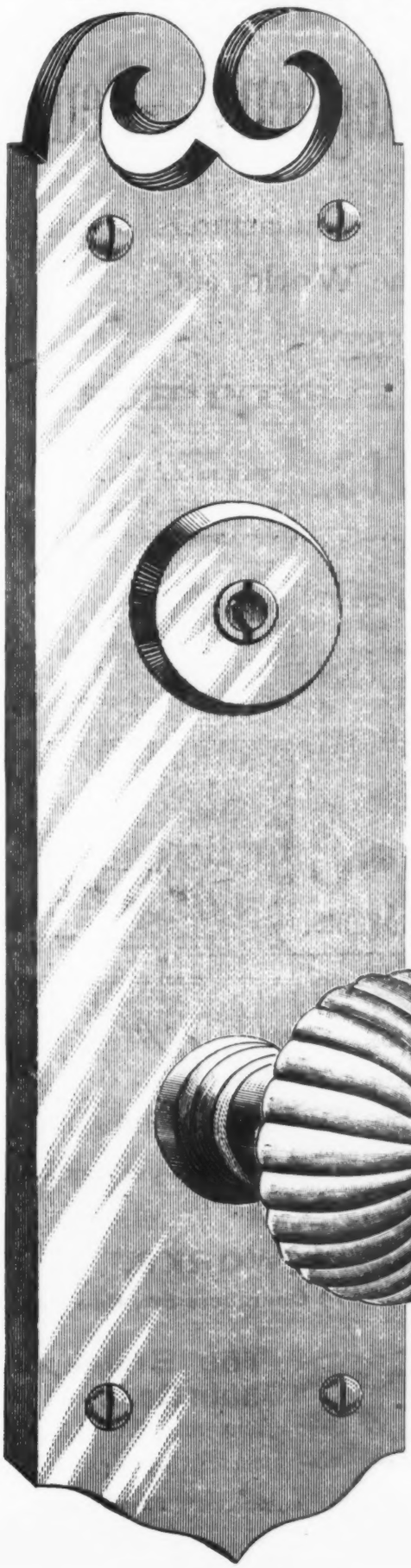

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No. P 3032
2½ Inch.
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11½ x 3¼ Inch.
COLONIAL DESIGN.

ESTABLISHED IN 1862.

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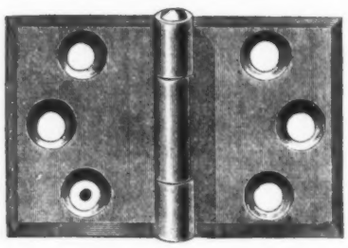

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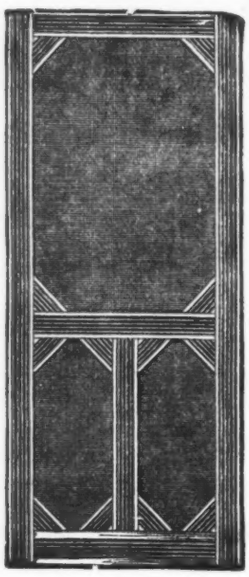

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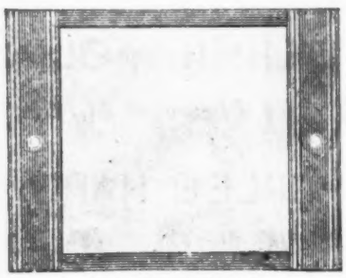

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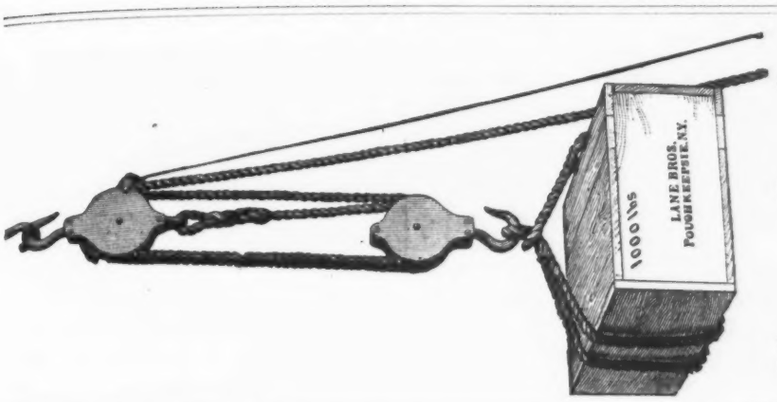

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Anti-Friction Steel Bushings,

Holds the load at any point, and always sure

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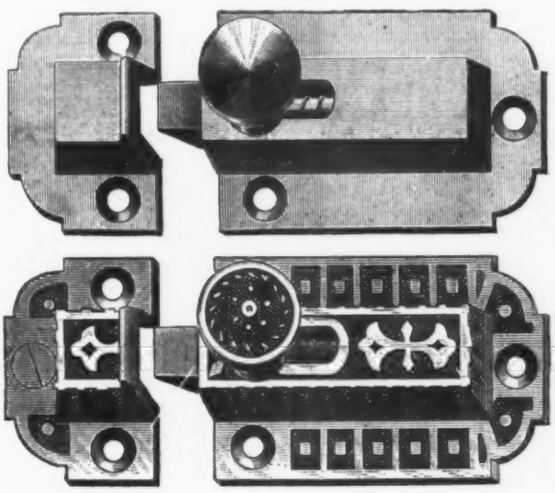

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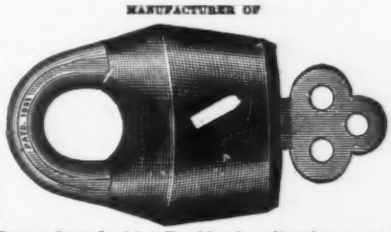

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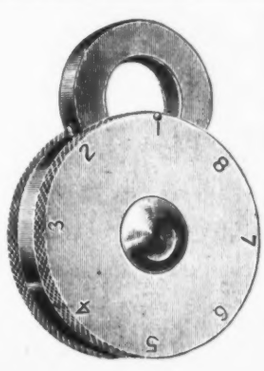

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WHY NOT PROTECT YOUR

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to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

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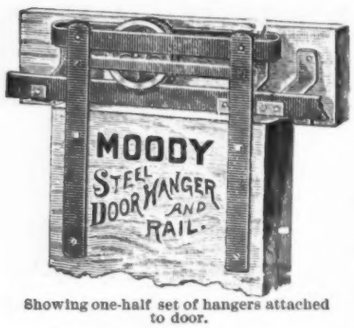

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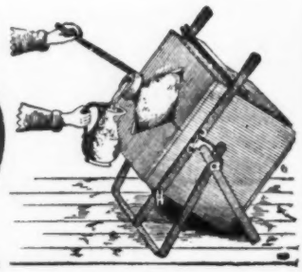

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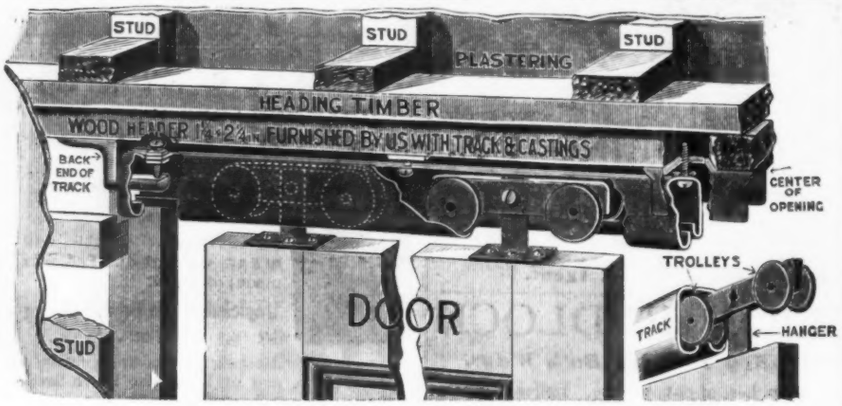

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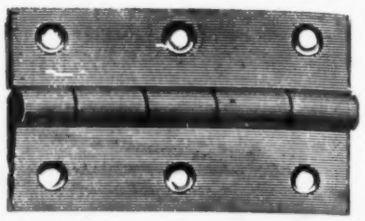

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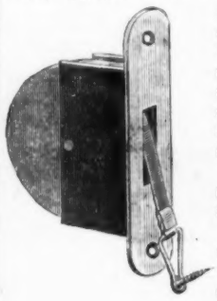

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The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

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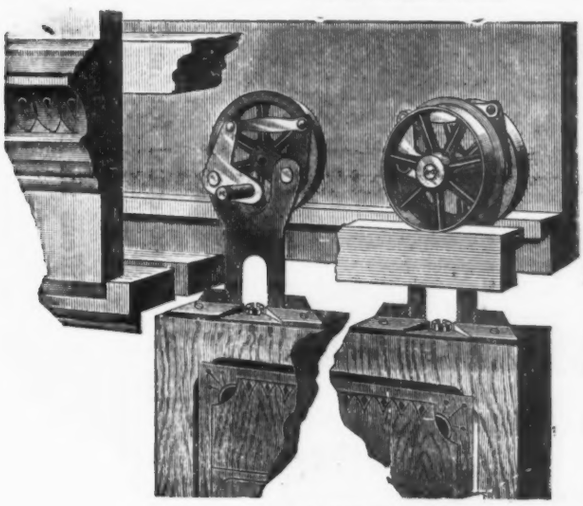

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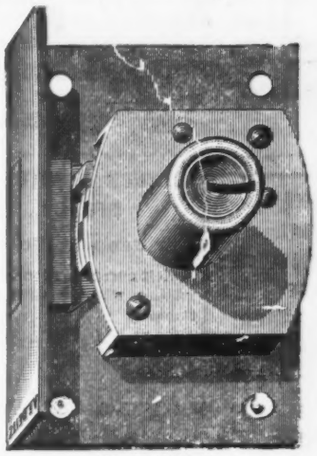

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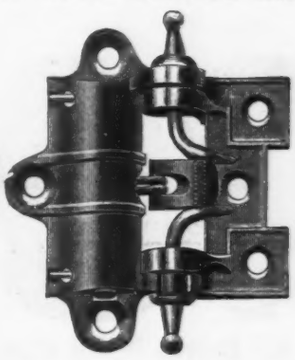

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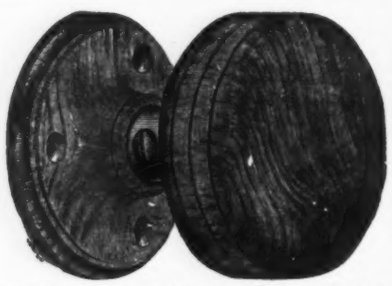

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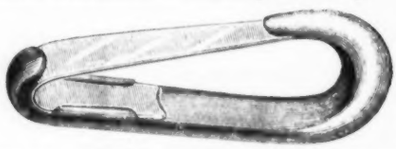

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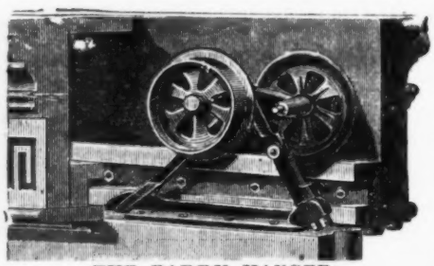

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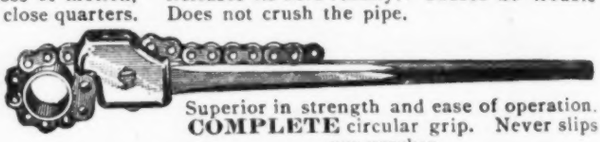

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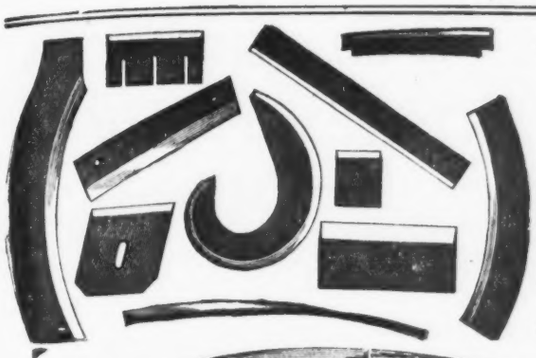

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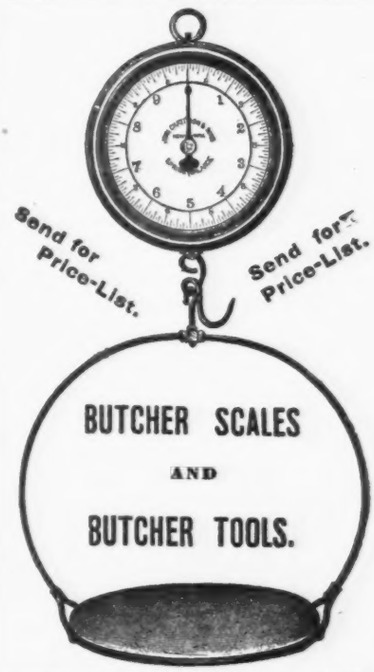

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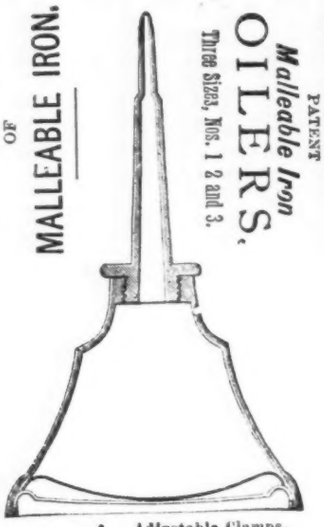

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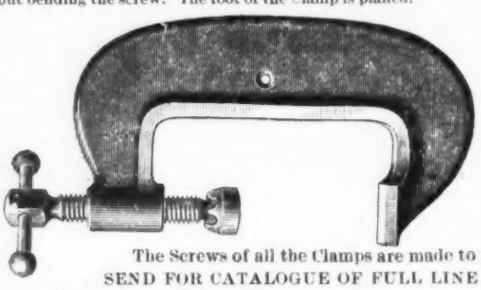

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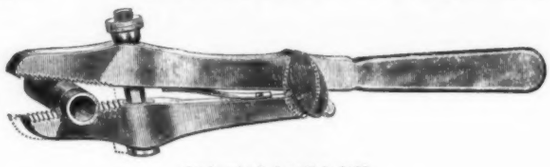

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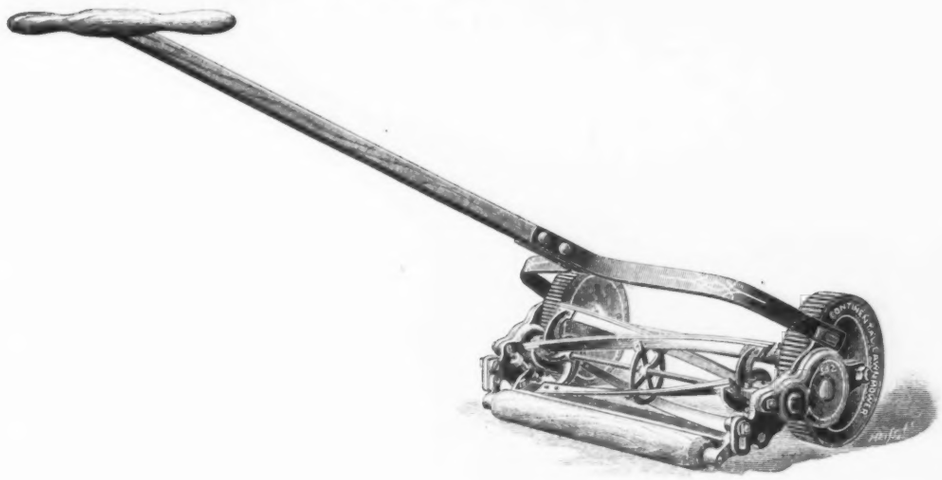

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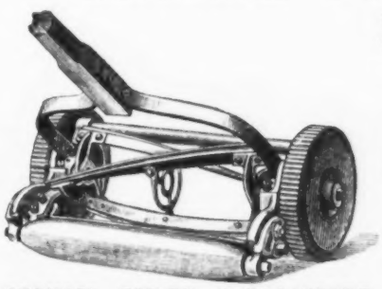

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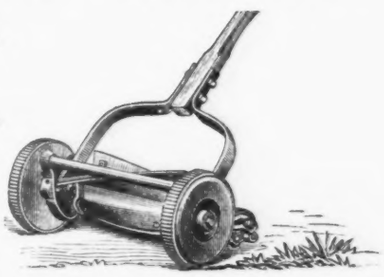

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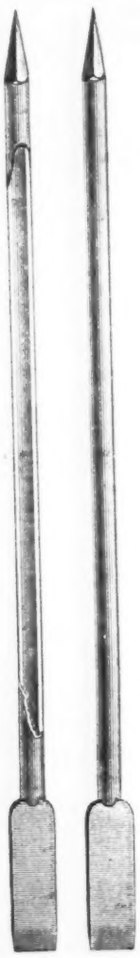

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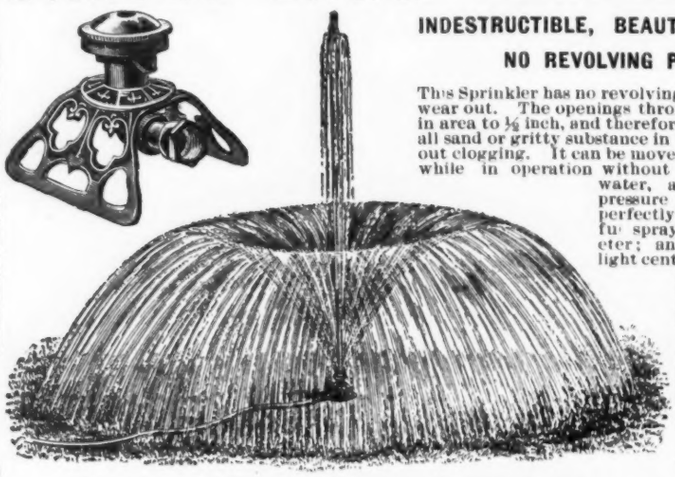

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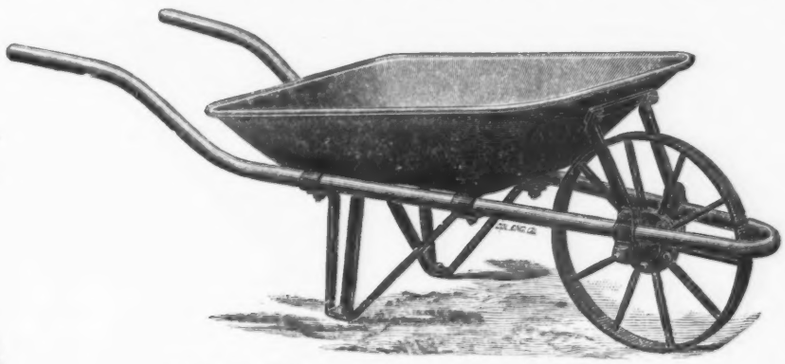

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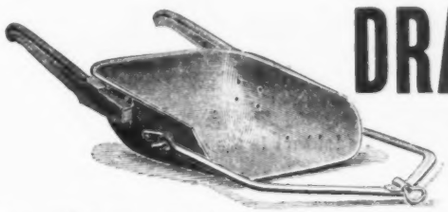

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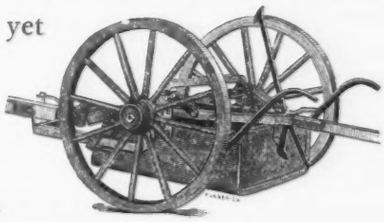

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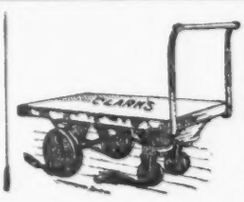

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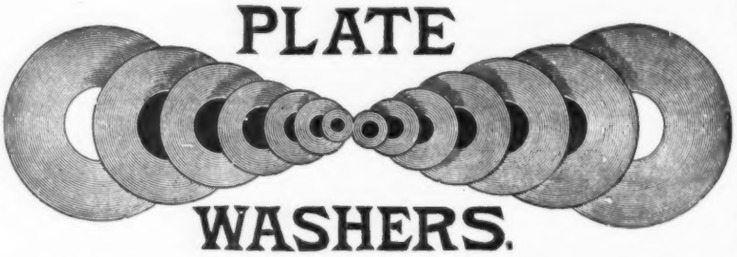

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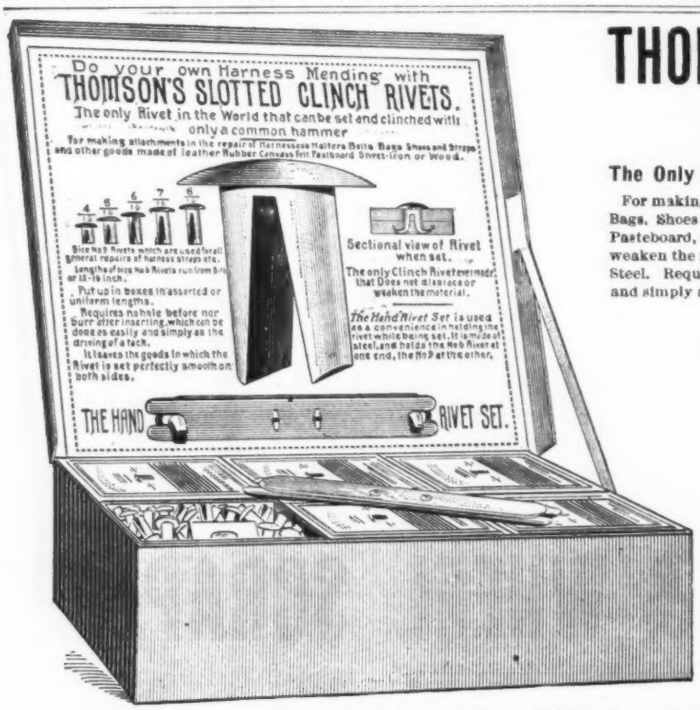

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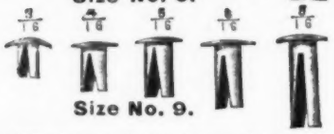

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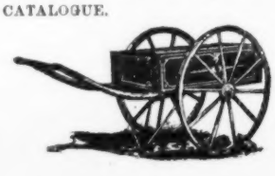

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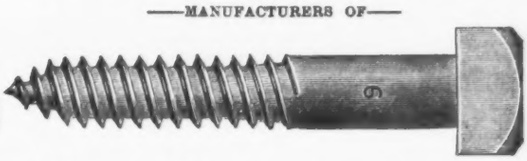

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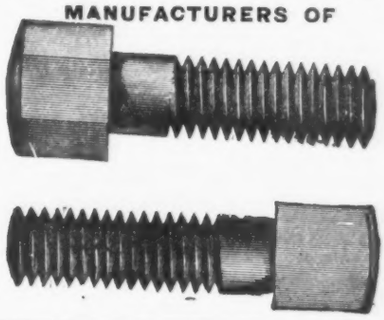

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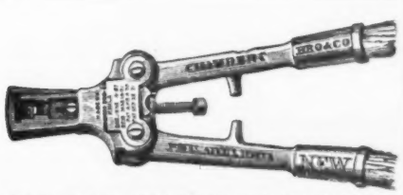

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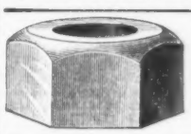

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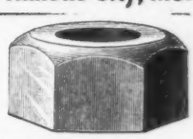

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N. Y. Belting & Packing Co., N. Y.
Rossendale Belting Co., Newark, N. J.
Shultz Belting Co., St. Louis, Mo.

Bicycles.
Bidwell, Geo. R. Cycle Co, 306 to 310 W. 59th St., N. Y.
Coventry Machinists Co, L'd, Boston, Mass.
Eagle Bicycle Mfg. Co., Torrington, Ct.
McIntosh-Huntington Co., Cleveland, O
Monarch Cycle Co., Chicago, Ill.
Pope Mfg. Co., Boston, Mass.
Read, Wm. & Sons, Boston Mass.
Rouse, Havard & Co., Peoria, Ill.
Sweeting Cycle Co., Philadelphia, Pa.
Western Wheel Works, Chicago, Ill.

Bit Cases.
Irwin Auger Bit Co., Wilmington, O.

Bits and Braces.
Backus Mfg. Co., Williamsport, Pa.
Bridgeport Gun Implement Co., 313 315 Broadway, N. Y.
Jennings, G. E. & Co., 97 Chambers, N.Y

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Cleveland Block Co., Cleveland, O.
Fulton Iron & Engine Works, Detroit Mich.
Toledo Block Works, Toledo, O.

Blowers.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Huvett & Smith Mfg. Co., Detroit, Mich.
Sturtevant, B. F., & Co., Boston, Mass.

Boiler Makers' Rolls.
New Doty Mfg. Co., Janesville, Wis.

Boiler Plates.
McIlvain, Wm. & Sons, Reading, Pa.
Lukens Iron & Steel Co., Coatsville, O.
Pottstown Iron Co., Pottstown, Pa.

Boiler Tubes.
Continental Iron Works Co., Brooklyn, N. Y.

Boiler Makers' Supplies.
Western Iron & Supply Co, St. Louis, Mo.

Boilers, Copper.
Randolph & Clowes, Waterbury, Conn

Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt.
Edge Moor Iron Co., Wilmington.
Harrisburg Foundry & Mch. Works, Harrisburg Pa.
Kendall, Edw. & Son, Cambridgeport, Mass.
Lane & Bodley Co., Cincinnati, O.
Pollock, W. B. & Co., Youngstown, O.
Southwark Fdy. & Mch. Co., Phila., Pa
Wetherill, Robt. & Co., Chester, Pa.

Bolt Cutters.
Chambers Bros. Co., Philadelphia.
Howard Iron Works, Buffalo N. Y.
Porter, H. K., Boston, Mass.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Ore.
Williams, David, 96 & 102 Reade N. Y.
Wolcott & West, Syracuse, N. Y.

Boxes, Hdw. Shell, &c.
Green, A H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Box Openers.
Paragon Mfg. Co., 112 Chambers St.,

Brass. *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Davol, John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., Waterbury, Conn.
Waterbury Brass Co., 296 B'way, N. Y.

Brass Butt Hinges.
Tiebout, W. & J., 16 & 18 Chambers

Brass Founders.
Cramp, B. H. & Co., Philadelphia, Pa.
Haight & Clark, Albany, N. Y.
Reeves, Paul S., Philadelphia.
Springfield Foundry Co., Springfield, Mass.

Brass Goods.
American Pin Co. Waterbury, Conn.
Brass Goods Mfg. Co., 88 Chambers,

Bridge Builders.
Berlin Iron Bridge Co., East Berlin, Ct

Broilers.
Sun Stamping Co., Kalamazoo, Mich.

Bronze (Tobin).
Ansonia Brass & Copper Co., 19-26 Cliff Street, N. Y.

Brooms and Brushes.
Lay, Jos. & Co., Ridgeville, Ind.

Builders' Hardware.
Branford Lock Wks., Branford, Conn.
Clafin Mfg. Co., Cleveland, Ohio.
Deitz, A. E., 97 Chambers St., N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw Co., Reading, Pa.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Ct.

Butcher and Shoe Knives, *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson, John, Sheffield, England.

Butts and Hinges.
McKinney Mfg. Co., Alleghany, Pa.
Sabin Machine Co., Montpelier, Vt.
Stanley Works, New Britain, Conn.
Tiebout, W. & J., 16 Chambers, N. Y.

Cabinet Makers' Bench.
Grand Rapids Hand Screw Co., Grand Rapids, Mich.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Can Openers.
Chieftain Company, Canton, O.

Car Axles.
Roberts, A. & P. & Co., Phila.

Carboy Stands.
Hillebrand & Wolf, Philadelphia, Pa.

Carpet Stretchers.
Montross, R. W., Galien, Mich.

Car Wheels.
Whitney, A. & Sons, Phila.

Carriage Hardware, *Makers of.*
Covert, E. Mfg. Co., Farmer Village, N.Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe Co., Birmingham, Conn.

Cartridge Reloading Tools.
Ideal Mfg. Co., New Haven, Conn.

Cash Carrier.
Utility Mfg. Co., Ltd., E. Saginaw, Mich

Cash Registers.
Lighton, Jno Mch. Co., Syracuse, N.Y.

Casters, Wheel, &c.
Clark, G. P., Windsor Locks, Conn.
Gwinner Mfg. Co., Hamilton, O.

Castings, Iron and Steel.
Ames Sword Co., Chicopee, Mass.
Arcade Malleable Iron Co., Worcester Mass.
Aschman Steel Casting Co., Sharon, Pa
Booth, The Lloyd, Co., Youngstown, O.
The Burr & Houston Co., Brooklyn, N.Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Cheney, S. & Son, Manlius, N. Y.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Herrick, J. A., 15 Whitehall St., N. Y.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Johnson Company, Johnstown, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Mahoning F'dry & Mch. Co., Danville, Pa.
New Castle Steel Casting Co., New Castle, Pa.
Norristown Steel Co., Norristown, Pa.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Novelty Iron Works, Allentown, P.
Palmers & De Mooy, Cleveland, O.
Pratt & Letchworth, Buffalo, N. Y.
St. Louis Steel Fdy. Co., St. Louis, Mo.
Sessions Foundry Co., Bristol, Conn.
Spencer's, L. S., Sons, Guilford, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Southern Mall. Iron Co., Chattanooga, Tenn.
Springfield Fdry. Co., Springfield.
Springfield Steel Casting Co., Springfield, O.
Standard Fdy. & Mfg. Co., Cleveland, O
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.
Trenton Mal. Iron Co., Trenton, N. J.
Union Mfg. Co., 103 Chambers St., N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Cellar Drainers.
Friedenwald Bros., Baltimore, Md.
Kemp, Clarence M., Baltimore, Md.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Link-Belt Engineering Co., Phila. a.
McKay, Jas. & Co., Pittsburgh, Pa.

Cherry Stoners.
Enterprise Mfg. Co, Philadelphia, Pa.

Chimneys.
Phila. Engineering Works., Phila., Pa.

Chisels, *Manufacturers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks Conn.
Nat. Chuck Mfg. Co., Mt. Vernon, N. Y.
Oneida Mfg. Chuck Co., Oneida, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
Whiton, D. E. Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.
Le Count, C. W., So. Norwalk, Conn.

Clipping Machines.
McCoy, Jos. F. & Co., 26 Warren St.

Clock Springs, *Manufrs of*
Haley Mfg. Co., Concord, N. H.

Coal.
Wister, Francis, Philadelphia

Coffee and Spice Mills.
Chillicothe Mfg. Co., Chillicothe, O
Lane Bros., Poughkeepsie, N. Y.
Waddel, Jno. M Mfg. Co., Greenfield, O

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited) 4 and 6 Warren, N. Y.

Conveyors.
Link Belt Engineering Co., Phila., Pa.

Copper.
Ames Sword Co., Chicopee, Mass.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Edes, Edw. L., Plymouth, Mass.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.
Wister, Francis, Philadelphia, Pa.

Cordage.
Elizabethport Cordage Co., 46 South,

Corn Huskers.
Perkins, H. H. Mfg. Co. Kewanee, Ill.

Corn Shellers.
Goulds Mfg. Co., Seneca Falls, N. Y.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.

Counting Machines.
Osborn, G. Edw. & Co., New Haven, Ct.

Coupling.
Almond, T. R., Brooklyn, N. Y.

Coverings, Boiler and Pipe.
Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co., Chicago, Ill.
Curley, J. & Bro., 6 Warren St., N. Y.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N.Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.
Union Hardware Co., Torrington Ct.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia Pa.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa.
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Egg Poachers.
Shepard, Sidney & Co., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Detroit Dynamo Co., Detroit, Mich
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevator Gates.
Webster & Perks Tool Co., Springfield, O.

Elevators, *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Chicago, Ill.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Southern Emery Wheel Co., Tallapoosa, Ga.
Springfield Emery Wheel Mfg. Co., Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
De Forest, H. L., 145 Liberty St., N. Y.
Gram Curtis, Pittsburgh, Pa.
Herrick, J. A., 15 Whitehall St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amaler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein & Schwars, Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
Tallman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

(See Alphabetical Index, Page 124.)

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Ball Engine Co., Erie, Pa.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works, Harrisburg, Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn
Church, Isaac, Toledo, O.

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. P. & Son, Hartford, Conn.
Kelley, B. F. & Son, 94 Liberty, N. Y.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.

Fencing, Iron and Wire.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Filing Cabinets.
Globe Co., Cincinnati, O.

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Kenovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Colliau, Victor, Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp, Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. S. Whiton Mach. Co., New London, onn.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. W. & Co., Gloucester, Mass.
Improved Process Glue Co., Gloucester Mass.
Russia Cement Co., Gloucester, Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Glennon & Krause, Chicago Ill.

Grinding and Polishing Mchy.
Cutter & Wood, Boston, Mass.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gun Implements.
Union Hdw. Co., Torrington, Conn.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hand Screws.
Grand Rapids Hand Screw Co., Grand Rapids, Mich

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Coburn Trolley Track Mfg Co., Holyoke, Mass
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Munger-Colton Mfg. Co., Chicago, Ill.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Graham, John R. & Co., 113 Chambers,
McCoy, Jos. F. Co., 28 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplee, Dunn & Alder, 97 Chambers St., New York.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Cleveland Fdy. Co., Cleveland, O.
Cronk Hanger Co., Elmira, N. Y.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co., Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hoe Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Oakes & Irwin, Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co., Sidney, O

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt,

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St. N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York
Sherwood Mfg. Co., Buffalo, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. R. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Kesley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Walbaum, W. H. & Co., Philadelphia,
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia,

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cuniffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 416 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Maiden St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Naylor & Co., 45 Wall St., N. Y.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., New burg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Graham, Emlen & Passmore, Phila, Pa
Heniey, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N. Y.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Gibbs Mfg. Co., Canton, O.

Lawn Sprinklers.
Etter & Henger Mfg. Co., St. Louis, Mo.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath l. Mass.

Locks & Knobs, *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Canton Combination Lock Co., Canton, Ohio.
Challen Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport,
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bertsch & Co., Cambridge City, Ind.
Bickford, H., Lockport, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E. son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Henley Mch. Tool Works, Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
MacKinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co., Waterbury Conn.
National Machinery Co., Tiffin, Ohio
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pitkin, A. B. Mchry. Co., Providence, Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Webster & Perks Tool Co., Greenfield O.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Branford, Conn.
Woodard F. S. Co., Chicago.
Norfolk & Western R. R.
N. Y., L. E. & W. R. R.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg,
Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, R. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Machinery.
Gates Iron Wks., Chicago, Ill.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Belknap Motor Co., Portland, Me.
Thomson-Houston Motor Co., Boston, Mass.

Muzzles.
Cincinnati Mfg. Co., Cincinnati, Ohio.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Detroit Dynamo Co., Detroit, Mich.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 544 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia

Nutmeg Grater.
Edgar Mfg. Co., Reading, Mass.

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Oil Cups and Lubricators.
Sherwood Mfg. Co., Buffalo, N. Y.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

(See Alphabetical Index, Page 124.)

Selbert Cylinder Oil Cup o., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R., Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Philadelphia, Pa.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J

Paint Burners.
Dangler Stove & Mfn. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y

Peanut Roasters and Warmers.
Mas ach, R. J. 80 Vesey St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Gibbs Mfg. Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Long & Allstatter Co., Hamilton, Ohio.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Fixings.
Foley, J. W. & Co., Cincinnati, O.

Pulleys.
Reeves Pulley Co., Columbus, O.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Niagara Stamping and Tool Co., Buffalo, N. Y
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Stiles & Parker Press Co., Middletown, Conn.
Wais & Roos Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 74 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Curley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristol's Mfg. Co., Waterbury, Conn.

Refrigerators.
Kankakee Mfg. Co., Kankakee, Ill.
Northern Refrigerator Co., Grand Rapids, Mich.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Gates Iron Works, Chicago, Ill.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron F'dry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Johns, H. W Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co., Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Richie Bros. Testing Mch. Co., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Grilley Co., New Haven, Ct.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Belleville Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Poller & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.
Union Hardware Co., Torrington, Conn

Skates, Roller.
Henley, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Speiter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Spice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N.Y.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 92 Beekman, N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co., Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co., Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Herrman & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
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Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
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Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
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Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
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Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill.
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

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Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
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Steam Gauge & Lantern Co., Syracuse, N. Y.

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J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
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Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

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Testing Machines.
Riehle Bros. Testing Mch. Co., Philadelphia.

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Sabin Machine Co., Montpelier, Vt.

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Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.
Tower & Lyon, 95 Chambers St., N. Y.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks. *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tube Scrapers.
Johns, H. W. Mfg. Co., 87 Maiden Lane

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Shelby Steel Tube Co., Shelby, O.
Spiral Weld Tube Co., 6 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills. *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

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Chapman Valve Mfg Co., Boston.
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Mason Regulator Co., Boston, Mass.

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Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 29 Dey, N. Y.
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Wagon Jacks.
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Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Robertson, O. H., Forestville, Conn.

Washers.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Washing Machines.
Diether & Barrows, Ft. Wayne, Ind.
Wayne, Anthony Mfg. Co., Ft. Wayne

Water Heaters.
Kemp, Clarence B., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Weaners.
Kees, F. D., Beatrice, Neb.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Blinds.
Durstine, Jacob, Wooster, O.

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Miller & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y
King, J. H. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Fence Stretchers.
Wire Fence Supply Co., Indianapolis, Ind.

Wire Goods. *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn
Cincinnati Mfg. Co., Cincinnati, Ohio
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
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Baackes Wire Nail Co., Cleveland, O.
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Lambert & Bishop Wire Fence Co. Joliet, Ill.
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Mantels.
Ironton Wood Mantel Co., Ironton, O.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches. *Manufacturers of.*
American Saw Co. Trenton, N. J.
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
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Rhode Island Tool Co., Providence, RI.
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Trimont Mfg. Co., Roxbury, Mass.
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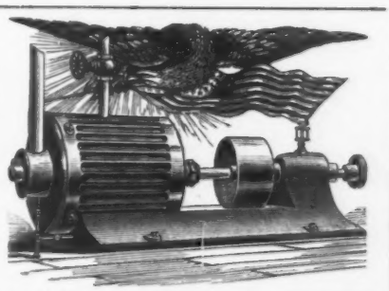

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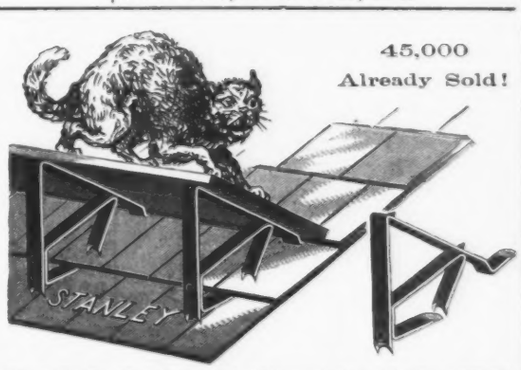

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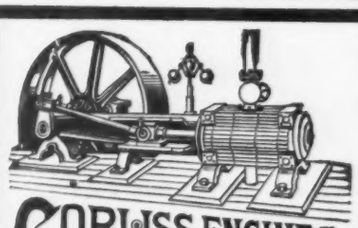

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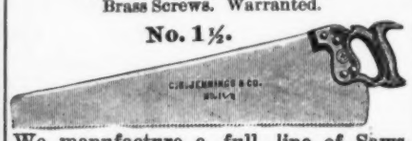

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Vol. XLIX: No. 17. *New York, Thursday, April 28, 1892.* $4.50 a Year, including Postage. Single Copies, Ten Cents.

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Advertising and Subscription Rates " 111

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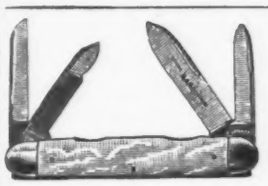
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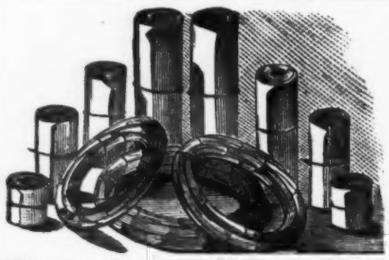
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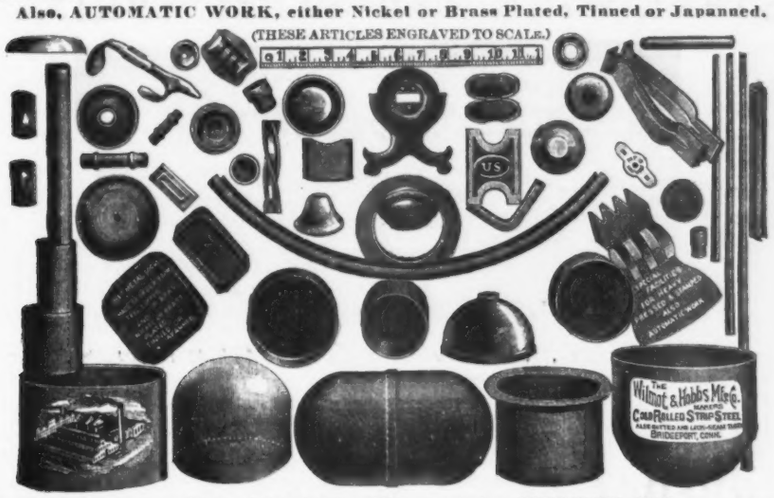

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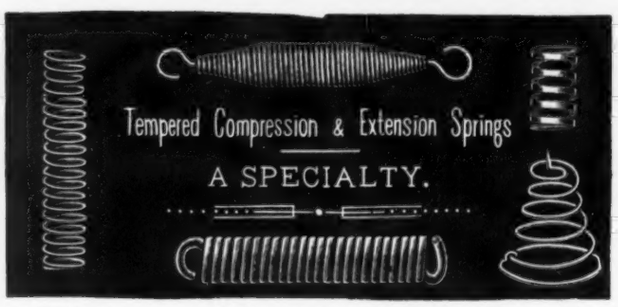

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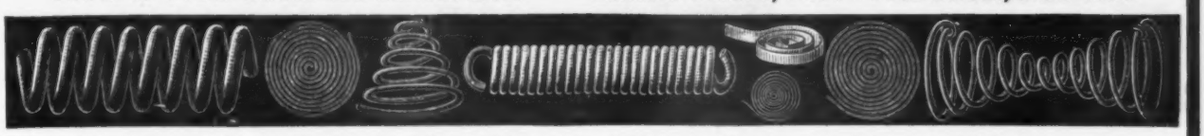

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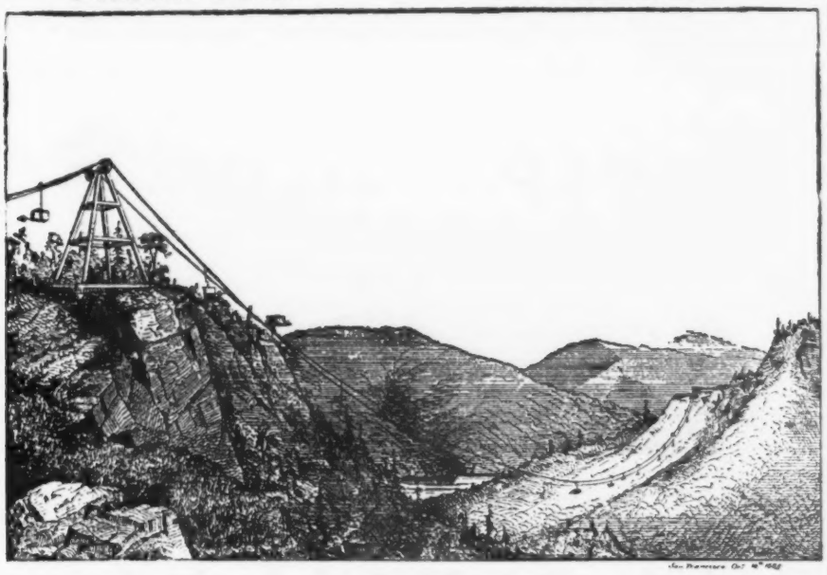

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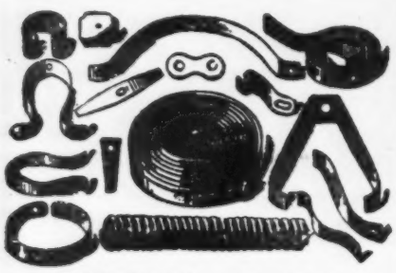

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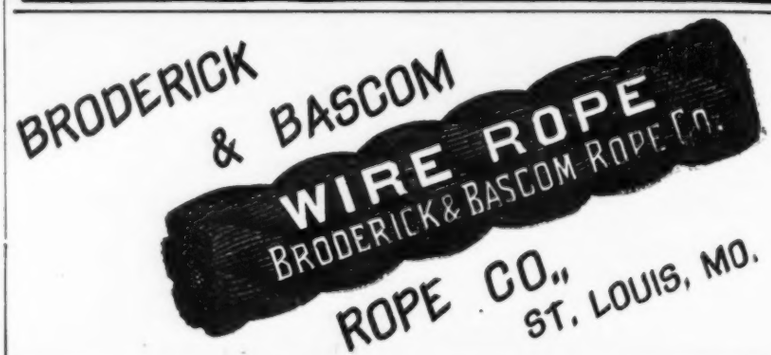

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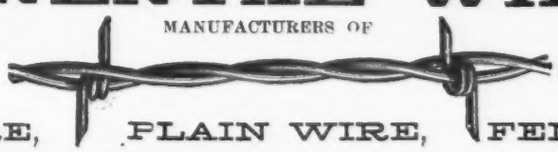
BARBED  WIRE,
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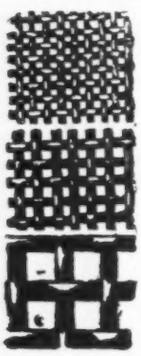

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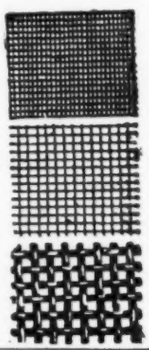

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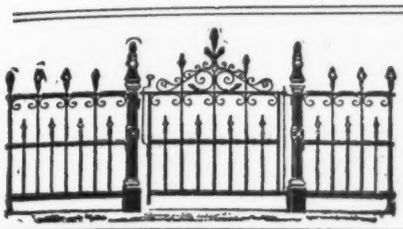

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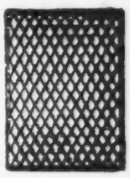

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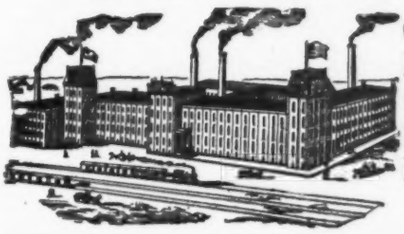

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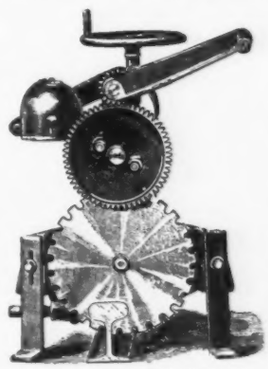

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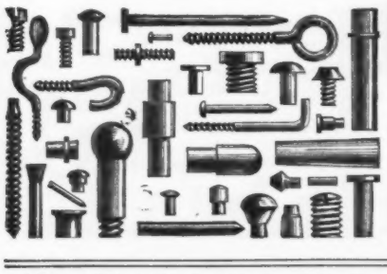

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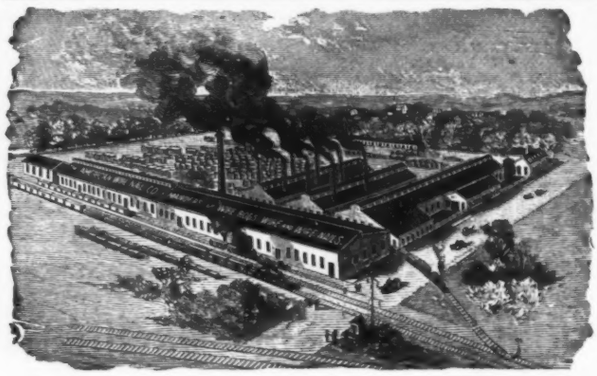

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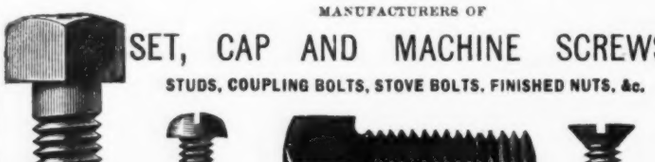

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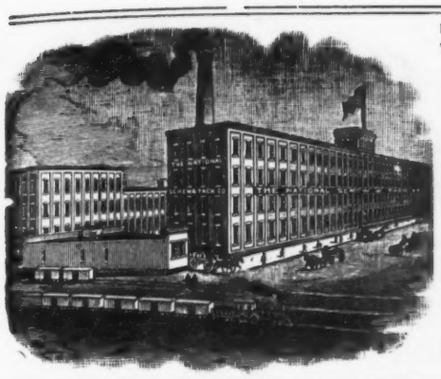

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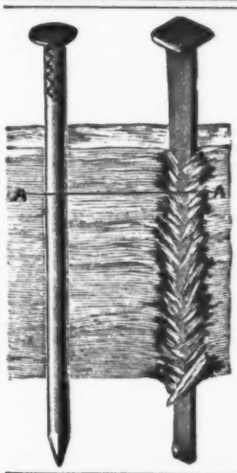

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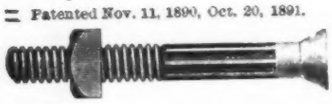
ITS ADVANTAGES ARE:

Stronger than a cut screw.
Forged nick.
Requires the use of only one bit.
Inserted easier.
Increased holding power.
Centralized point.
Is cold forged, and entire surface has a metallic skin.

Samples Sent on Application.

Patented Nov. 11, 1890, Oct. 20, 1891.



FLUTED TIRE BOLTS.

SEND FOR SAMPLES.

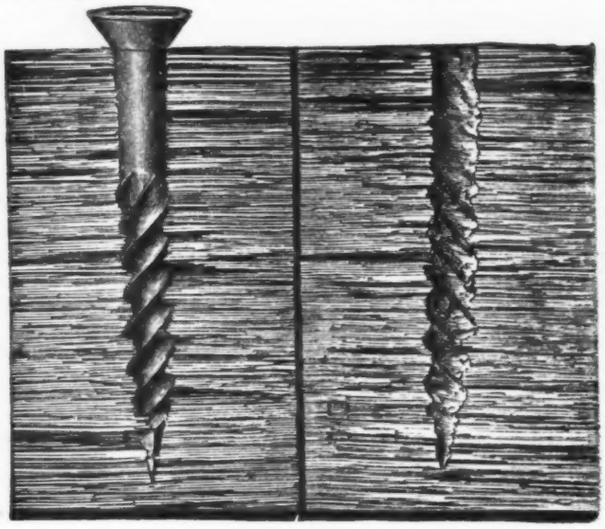
Cold Forged Coach Screws.

Patented May 10, July 19, '87; Oct. 29, '89; Aug. 19, Oct. 21, '90; Apr. 7, '91.

"ROGERS' DRIVE SCREWS."

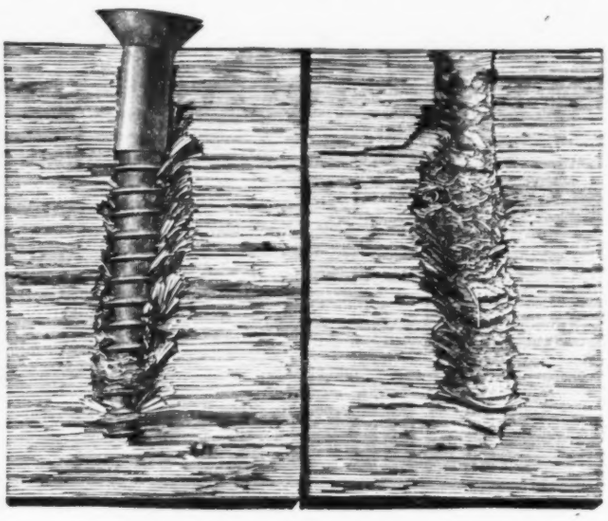
Patented May 10, 1887; July 19, 1887; July 10, 1888. Other patents pending.

List prices, same as common iron wood screws. Discount for Flat Heads, 82½%



THE "ROGERS DRIVE SCREW,"

Driven with a hammer its entire length.



A COMMON CUT THREAD SCREW,

As ordinarily inserted, *i. e.*, driven two-thirds of its length with a hammer and the balance with a screw-driver. Fibres of the wood are necessarily broken, and holding power of screw much impaired.

Should be driven with a hammer its entire length.

1. Turns like a screw when driven with a hammer.
2. Holds stronger than a common screw as ordinarily inserted.
3. Does not break the fibres of the wood.
4. Cheaper than a common screw.
5. Is cold forged and has metallic skin over entire surface.

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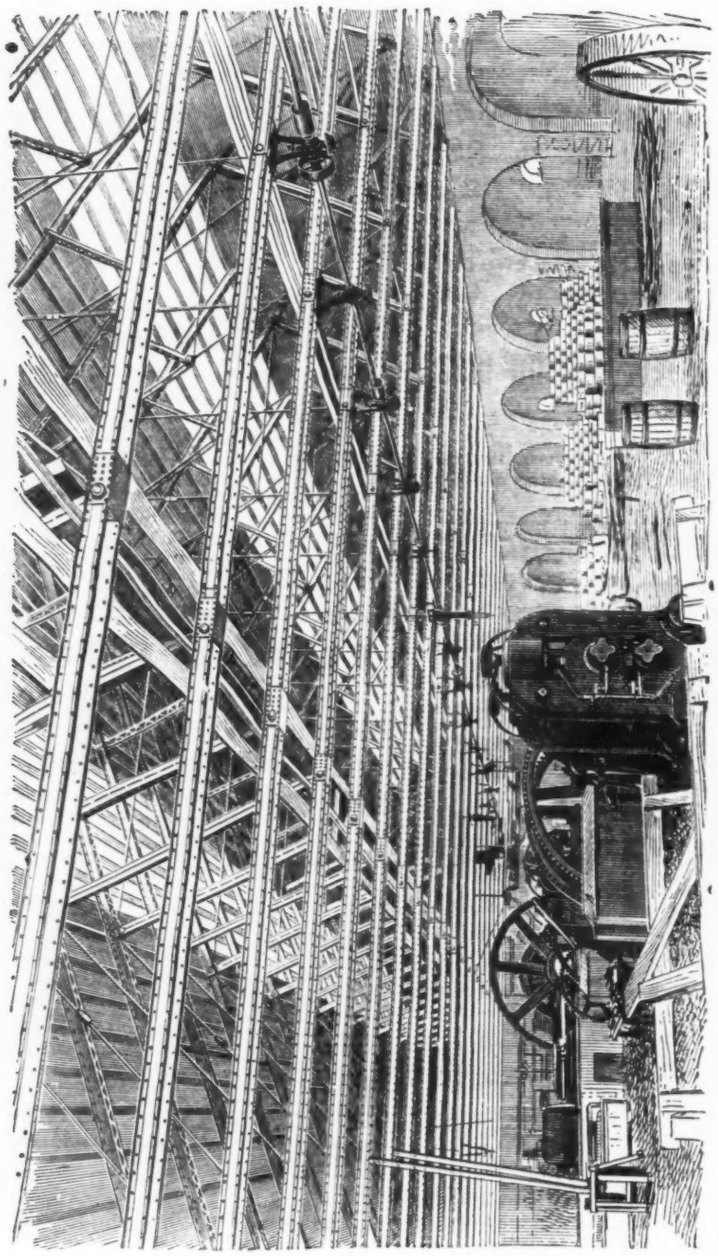

The above illustration is taken direct from a photograph, and shows the construction of an Iron Truss Roof designed and built by us for the Coe Brass Mfg. Co., at Torrington, Conn. The roof is over their Rolling Mill, which is a building 118 ft. wide and 233 ft. long. The line of brick arches, shown on the right, connects with an adjoining Muffle Room, which is also covered with an Iron Truss Roof designed and built by us.

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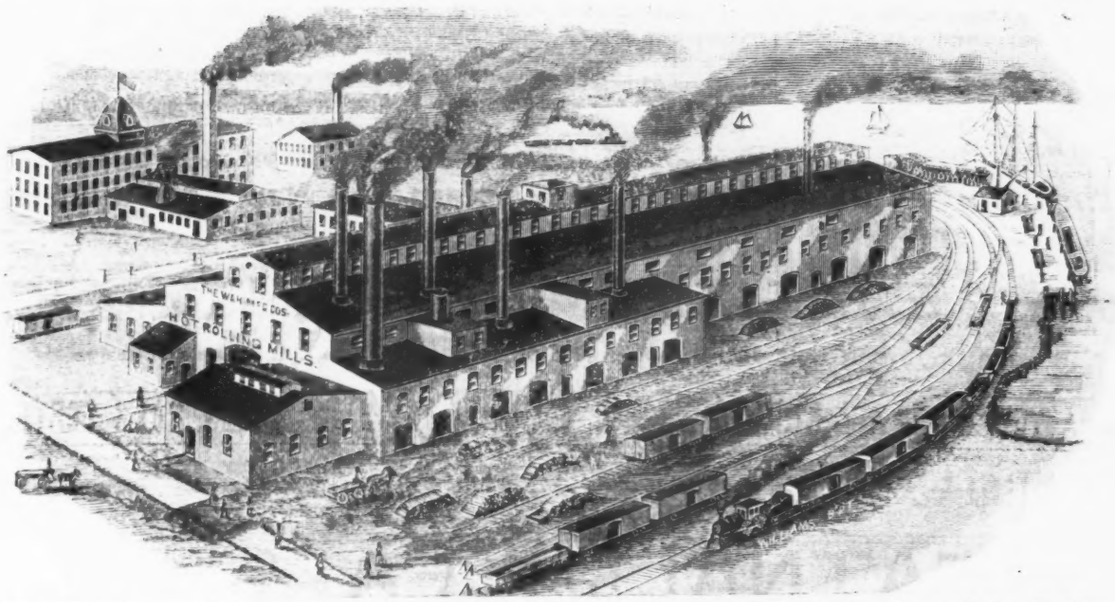

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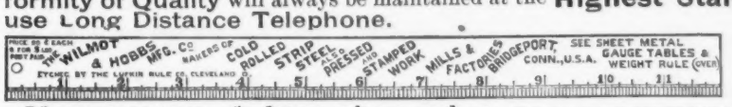

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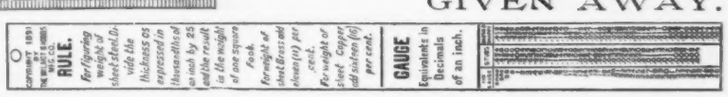

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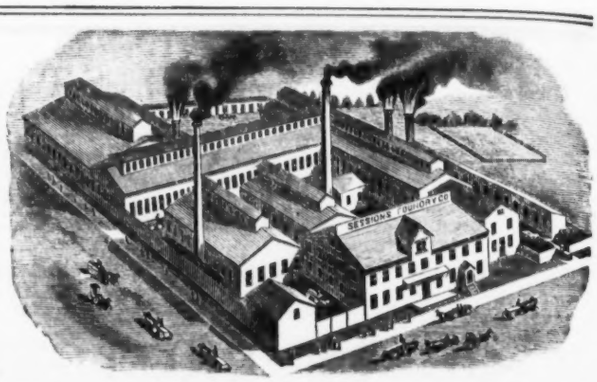

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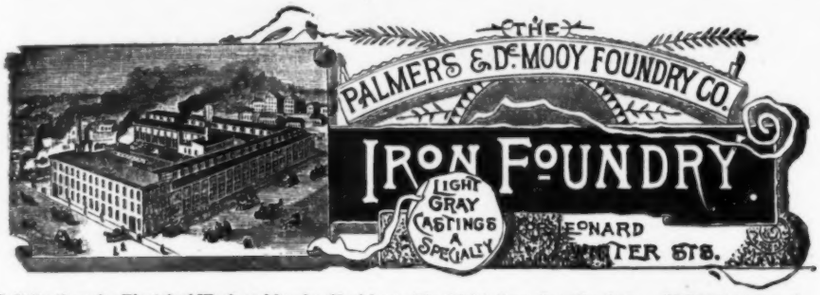

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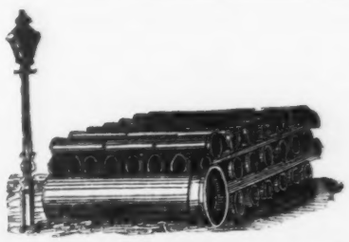

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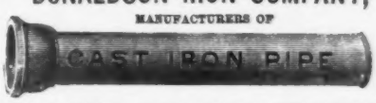

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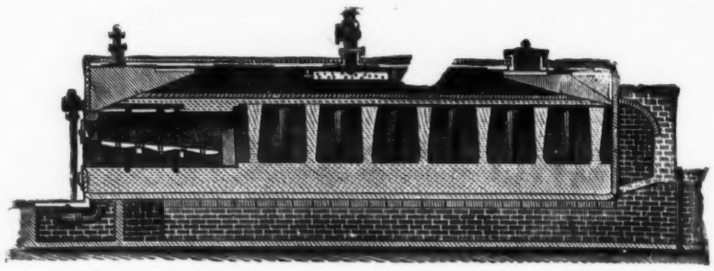
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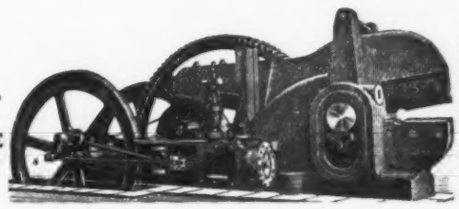

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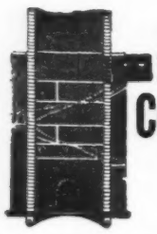

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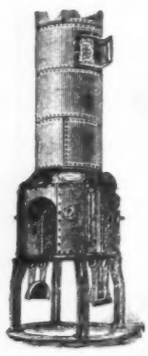

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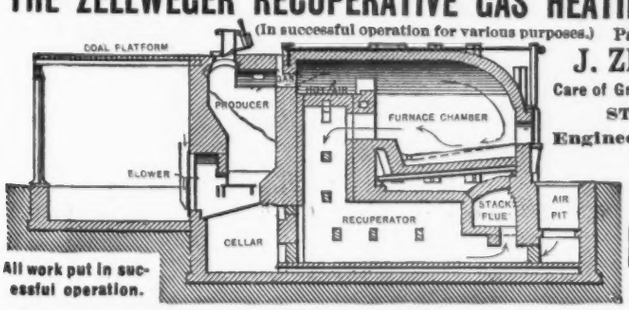

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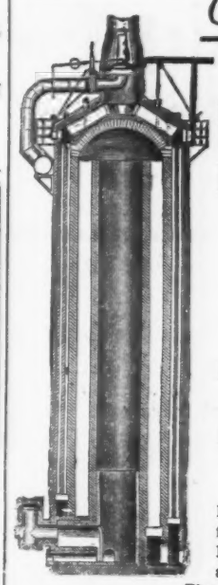

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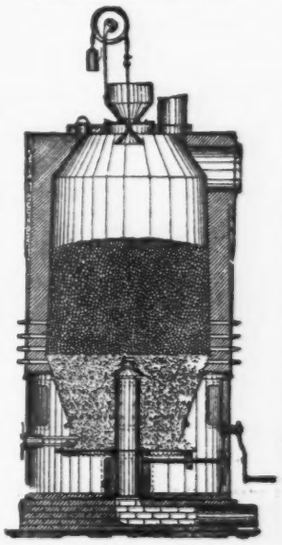

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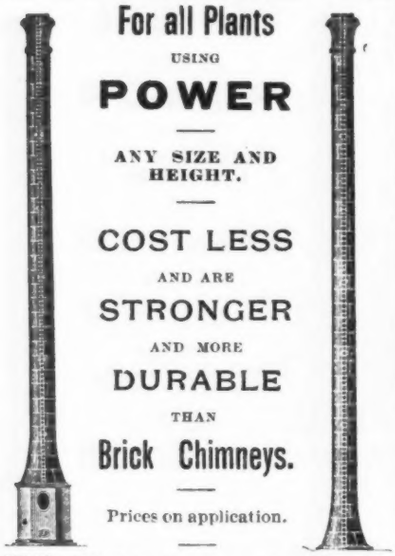

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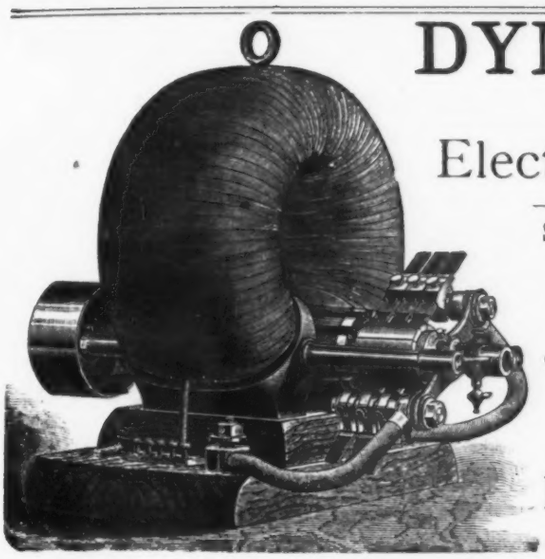

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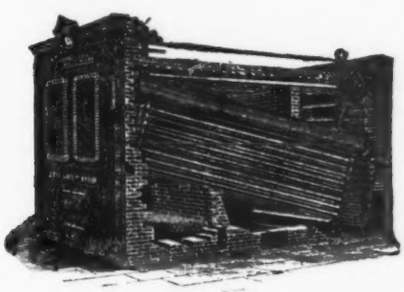

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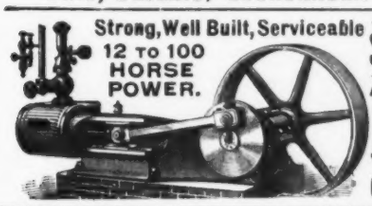

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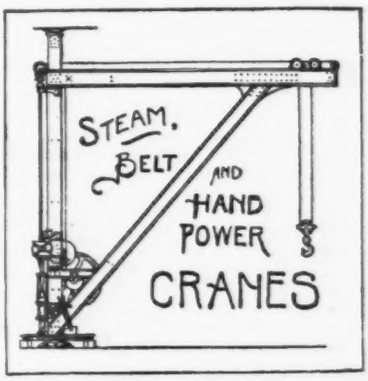

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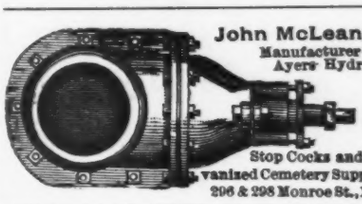

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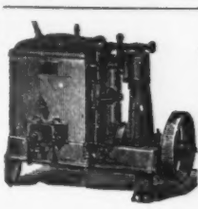

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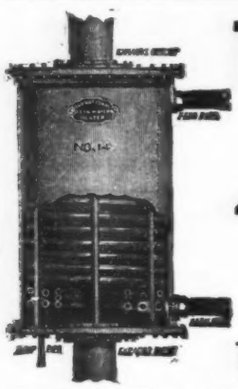

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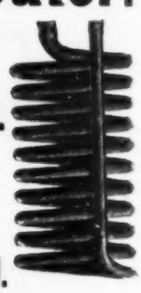

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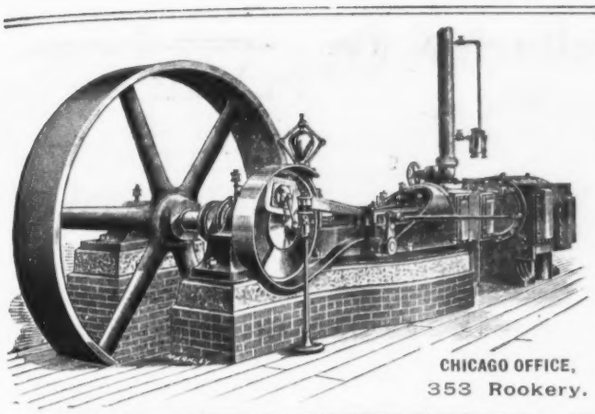

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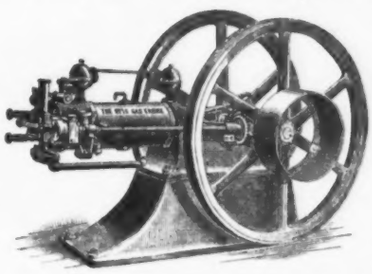

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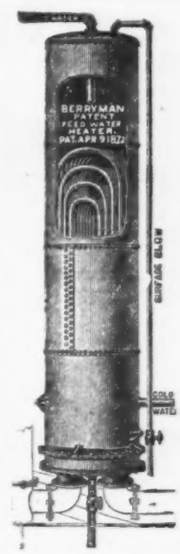

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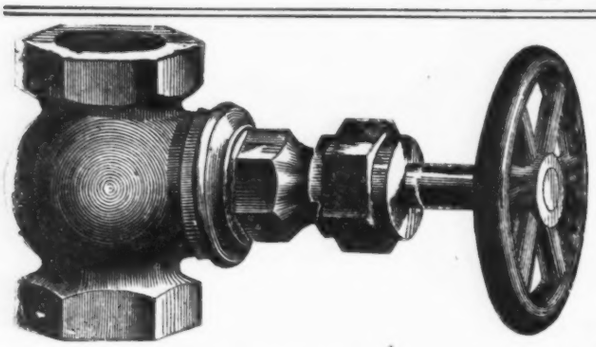

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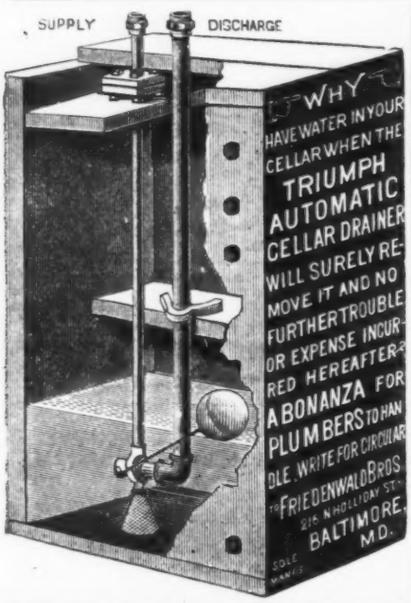

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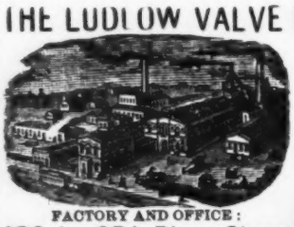

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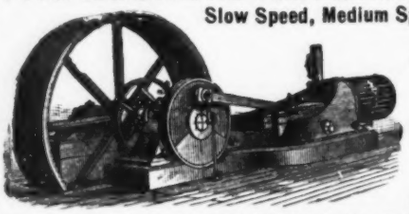

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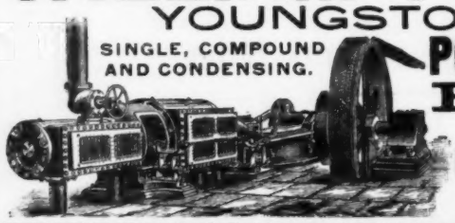

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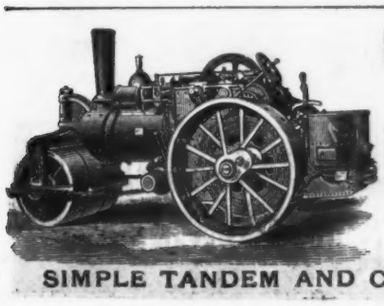

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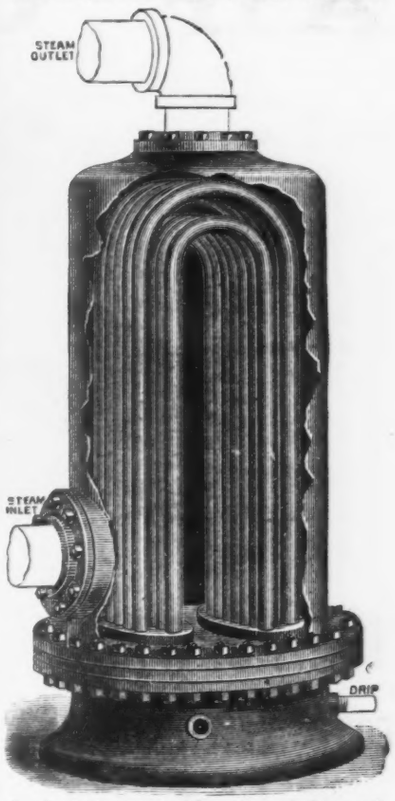

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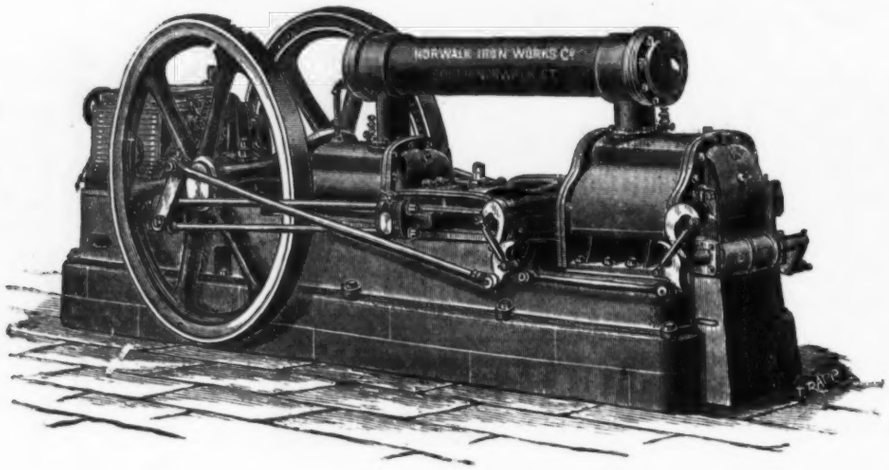

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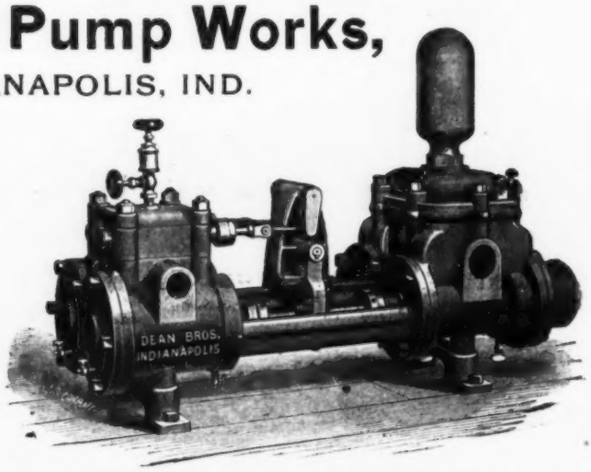

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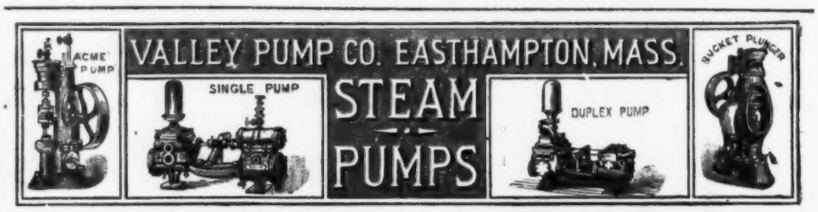

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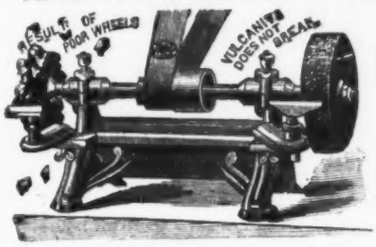

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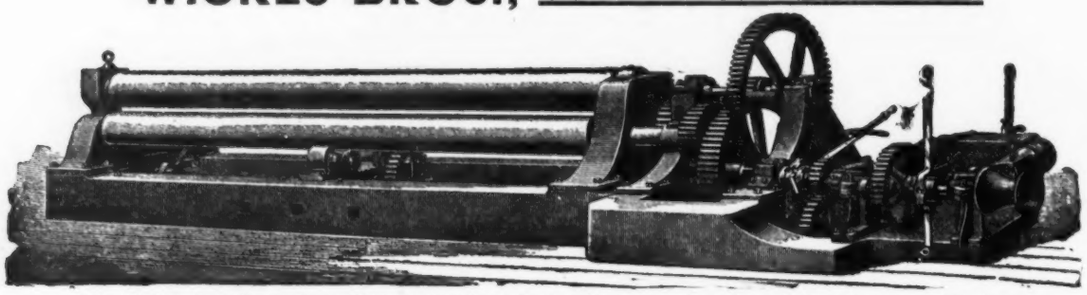

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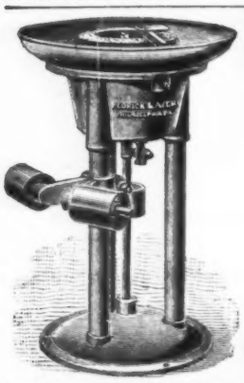

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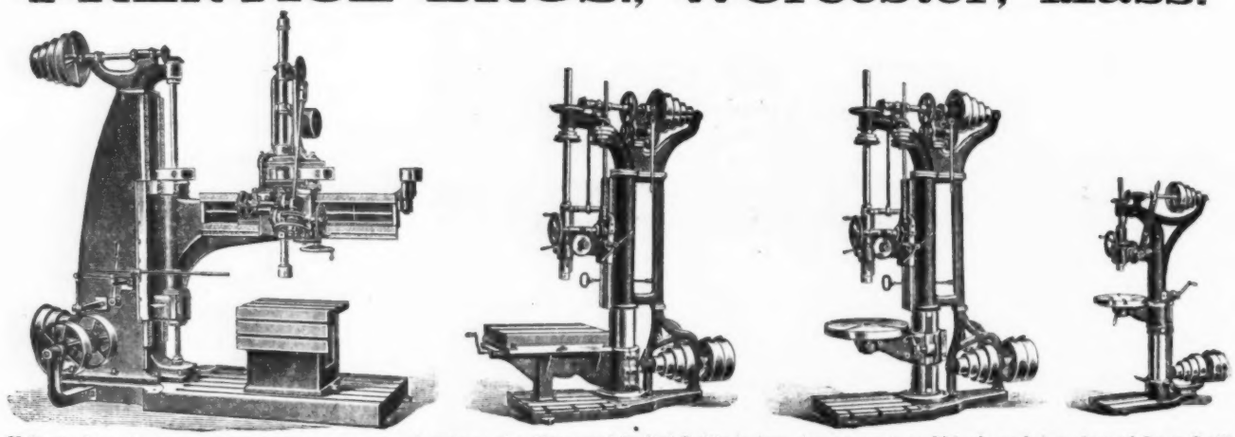

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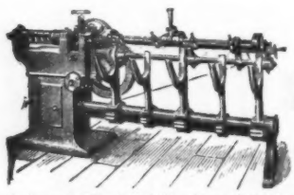

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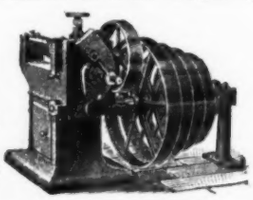

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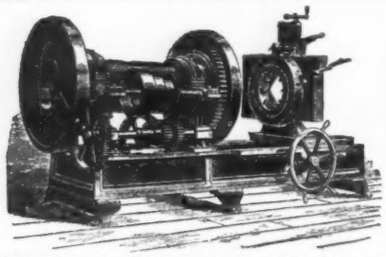

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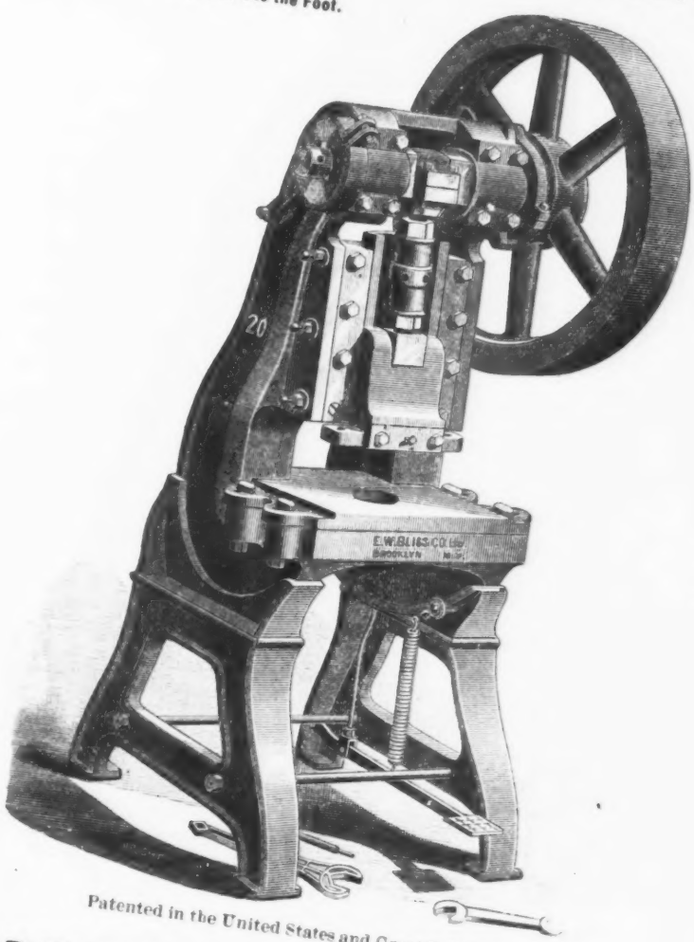

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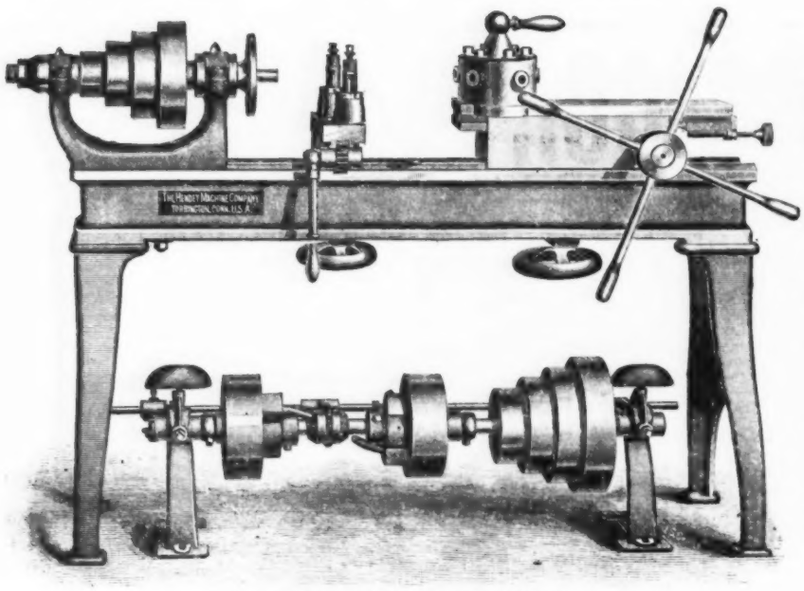

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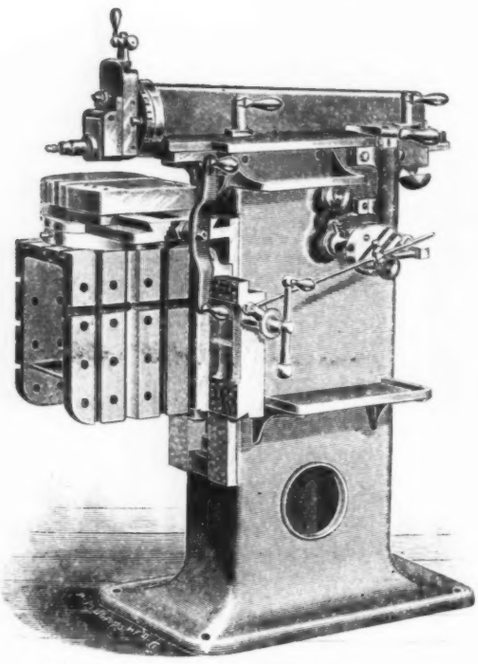

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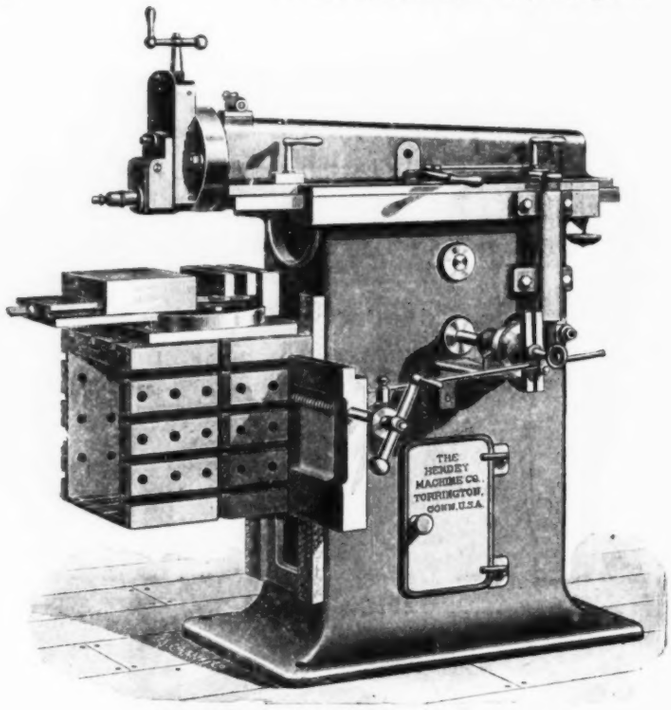

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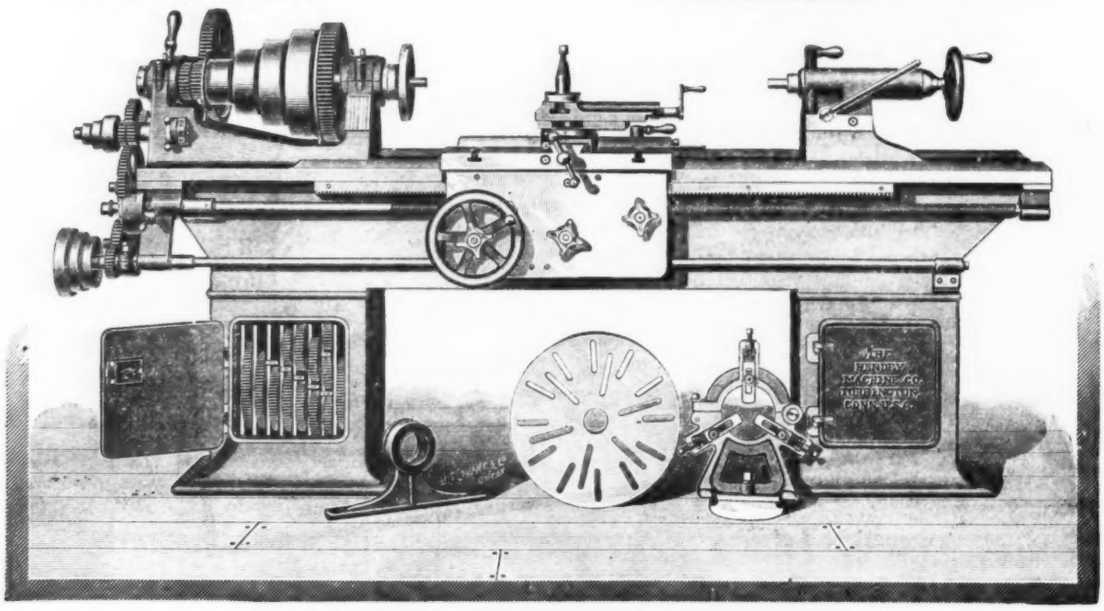

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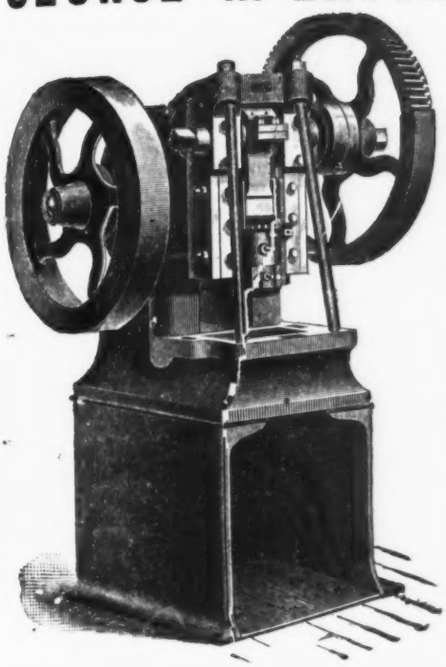

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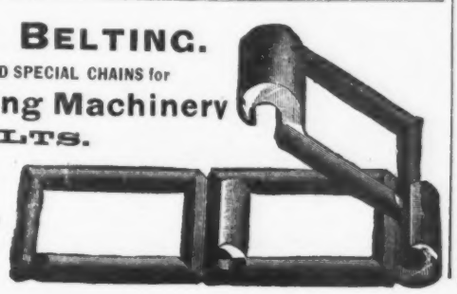

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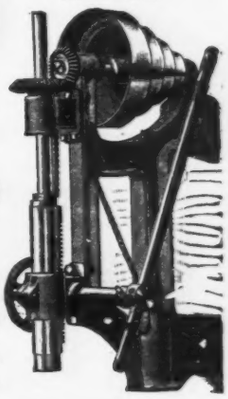

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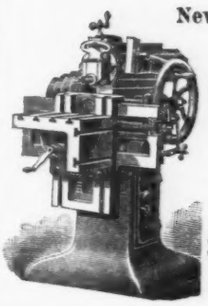

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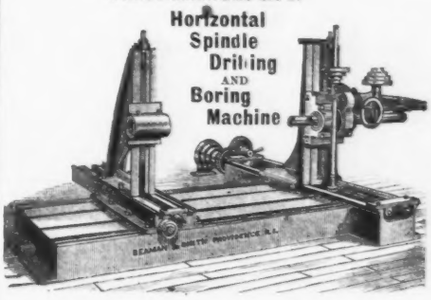

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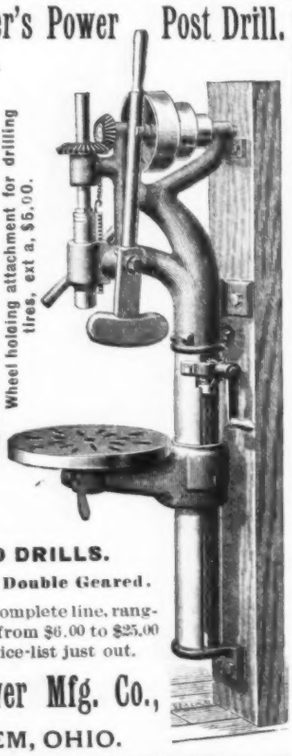

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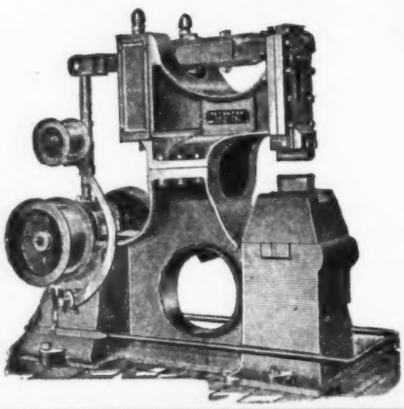

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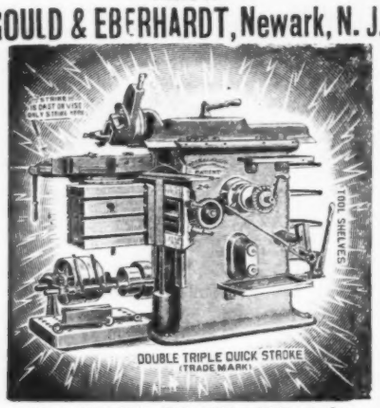

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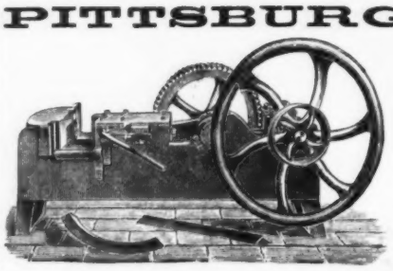

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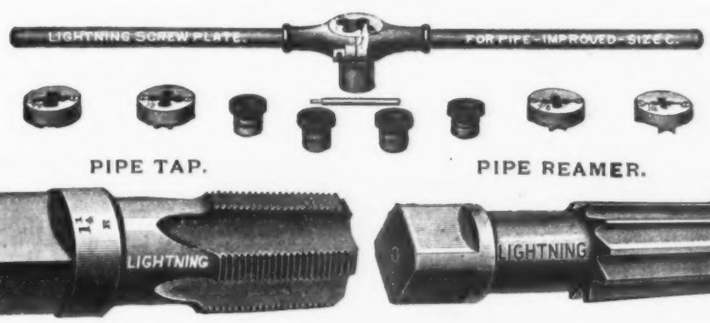

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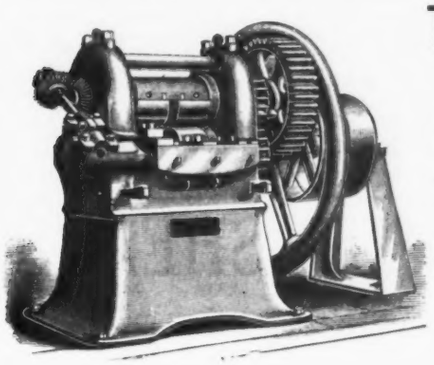

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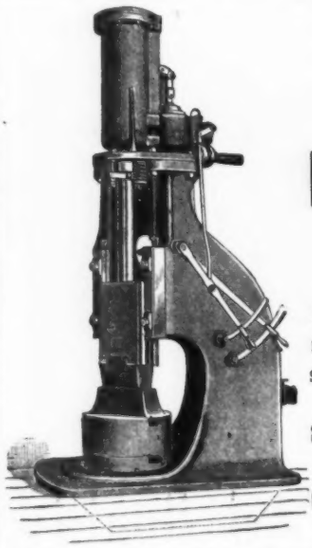

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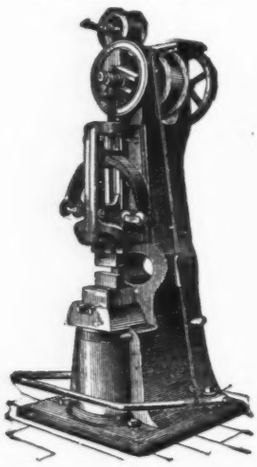

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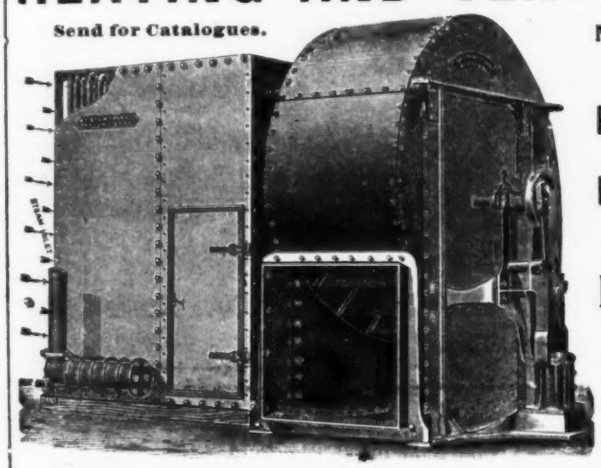

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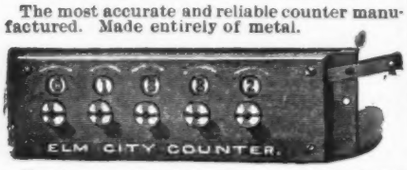

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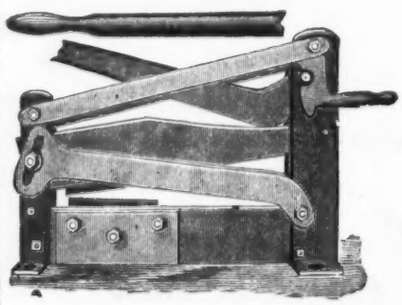

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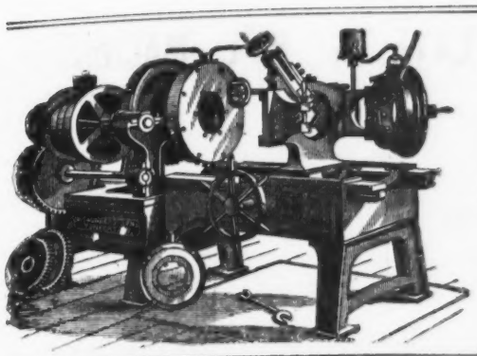

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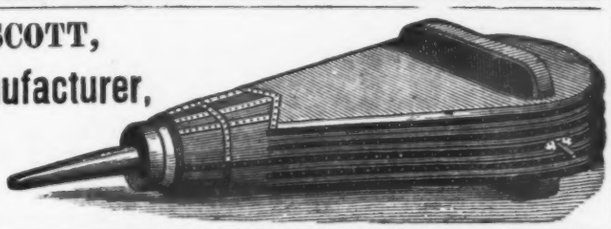

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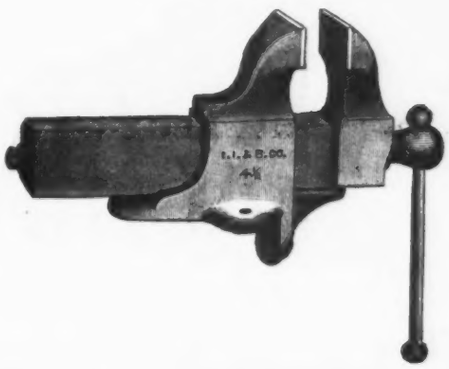

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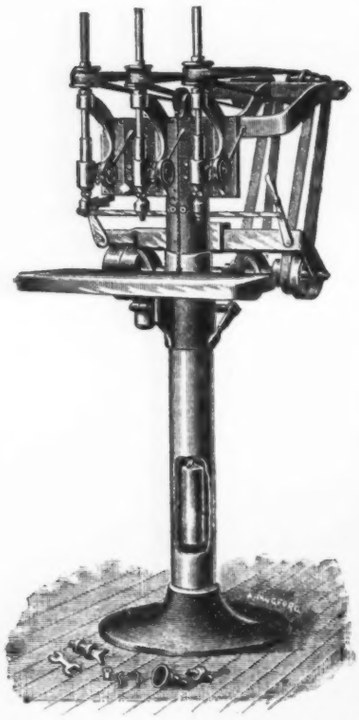

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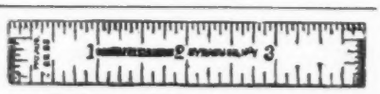

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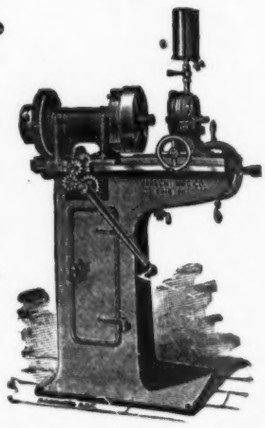

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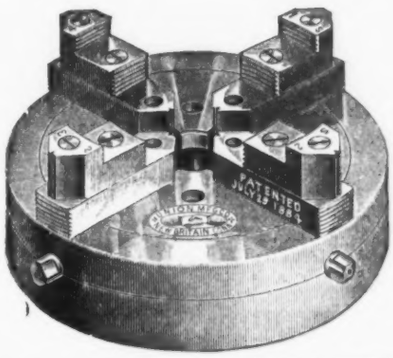

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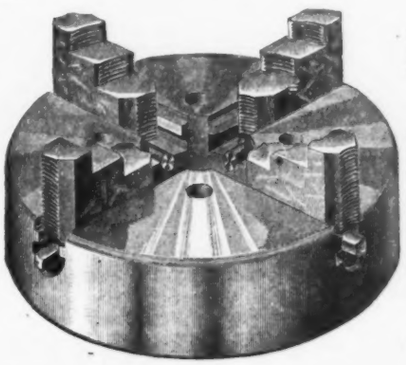

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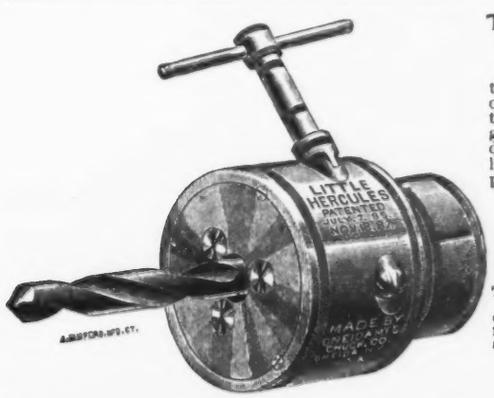

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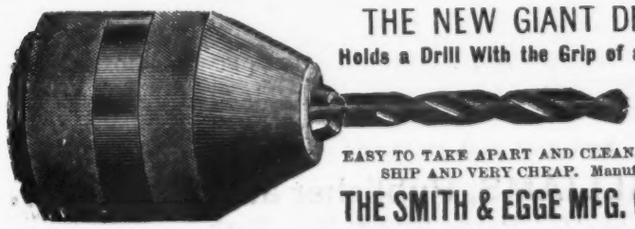

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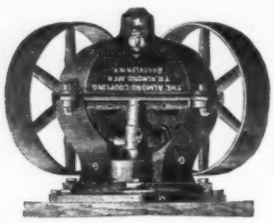

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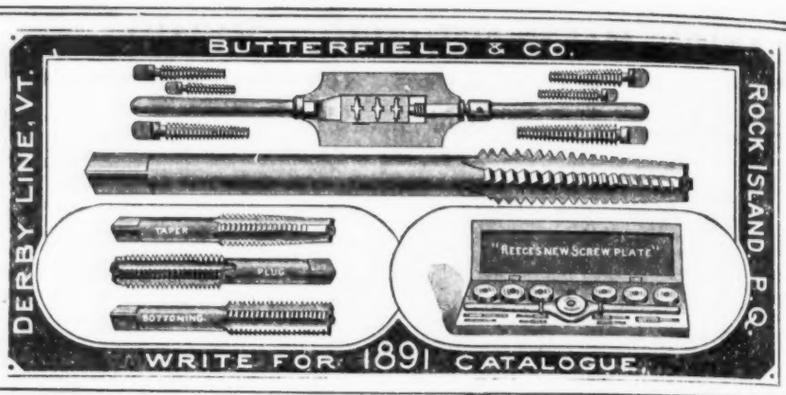

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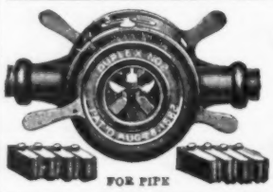

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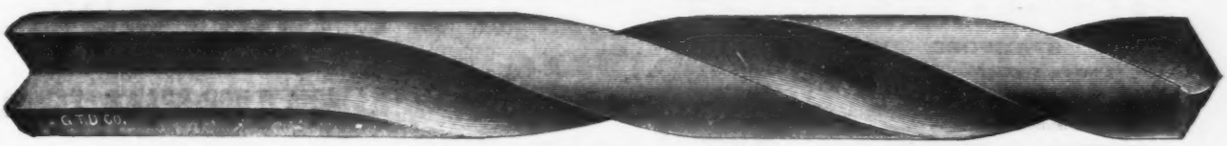

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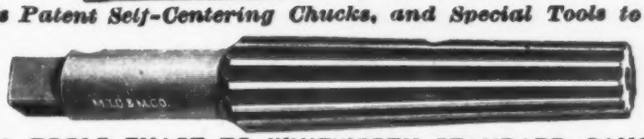

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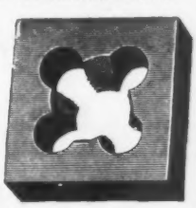

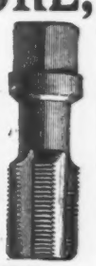

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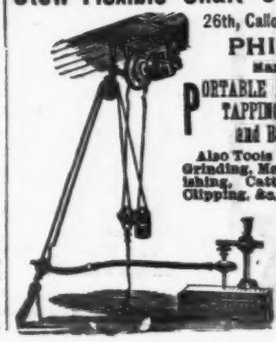

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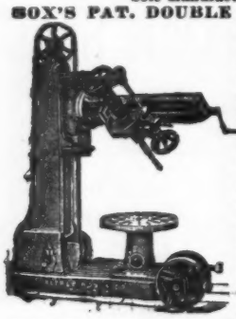

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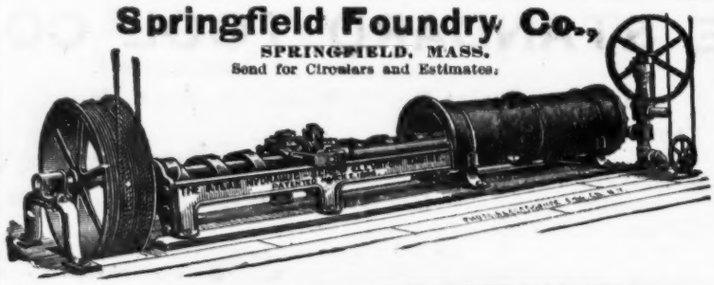

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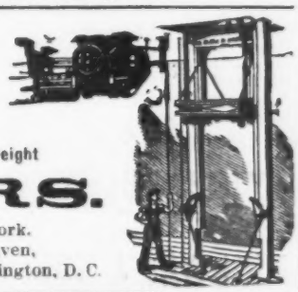

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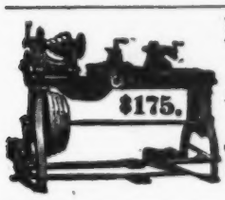

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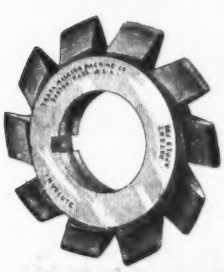

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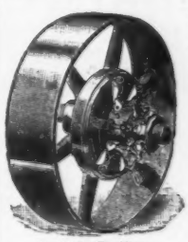

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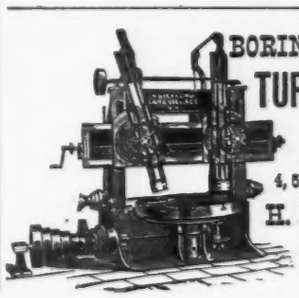

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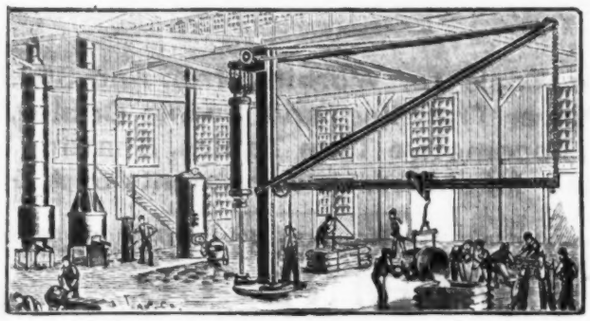

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A fiber strengthened wheel so made as to not interfere with the cutting qualities; in other words, a vast improvement on his original invention, which has thus far been made under other people's patents. Further particulars later.

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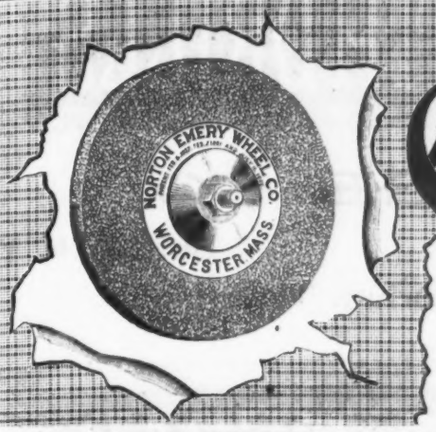

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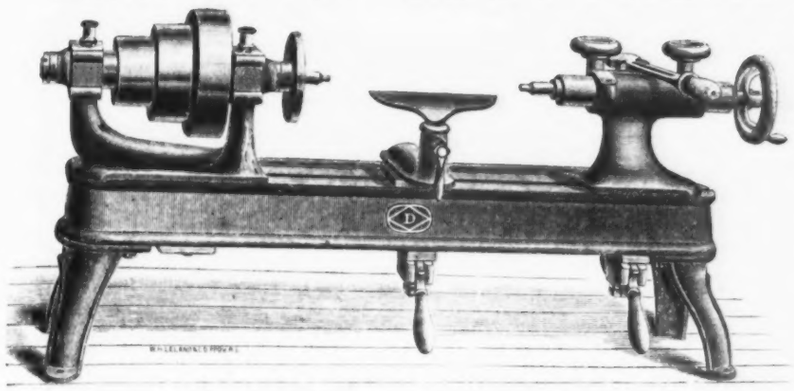

Lathes with the patented combined lever and screw feed. Lever is indispensable where time is money, for quick drilling, etc.

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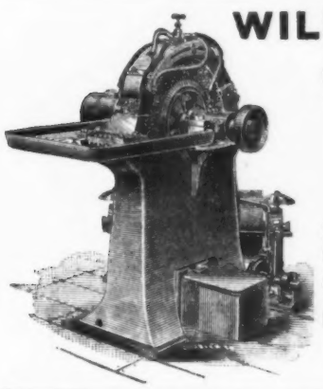

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Have over 3000 of their MACHINES SOLD throughout the U. S., South America, Australia and Europe.

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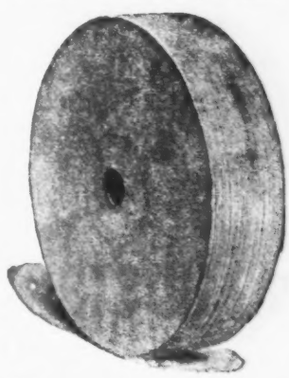

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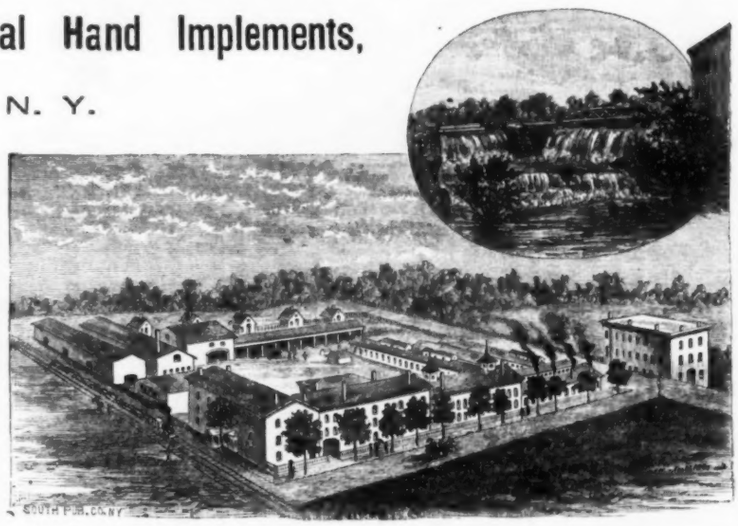

The Stockholders of this Company have decided to offer its manufacturing plant and machinery for sale.

The buildings surround a hollow square of several acres in extent, as shown in accompanying cut. The main buildings are substantially constructed of stone and brick, thoroughly equipped with fire extinguishing apparatus, and cover the entire frontage of the property, 350 feet.

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It will be offered for about one-third the original cost of construction.

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IS designed to take wire from the coil, and at one operation, straighten, cut, and mill one or both ends round, beveled, or tenoned, for such work as lamp-burner wires and wires for clock work, butts, locks, and various kinds of builders' and other hardware; and it can also be used as a machine for ordinary wire cutting.

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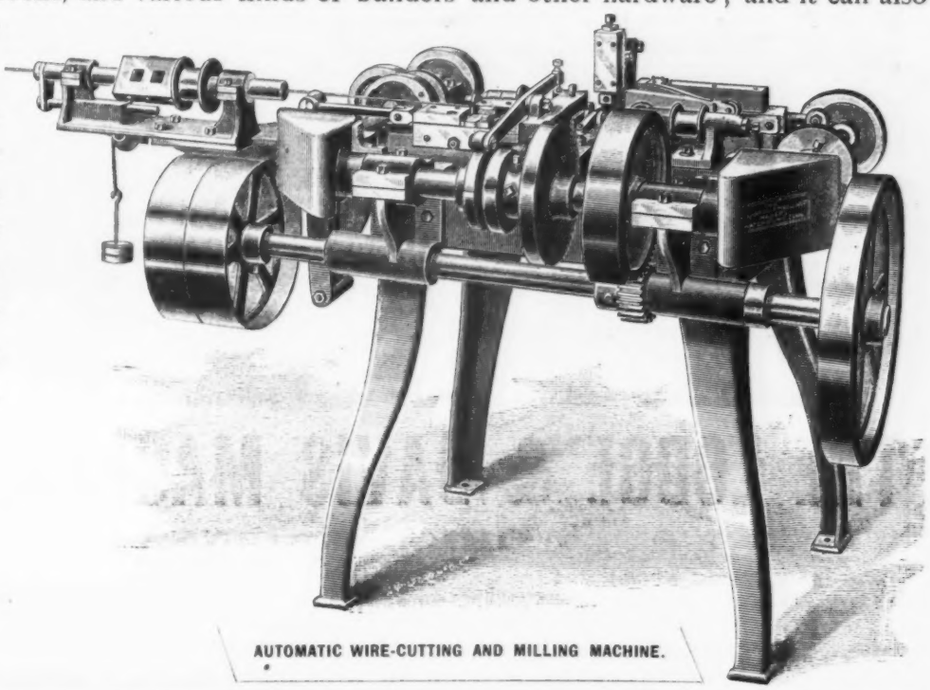

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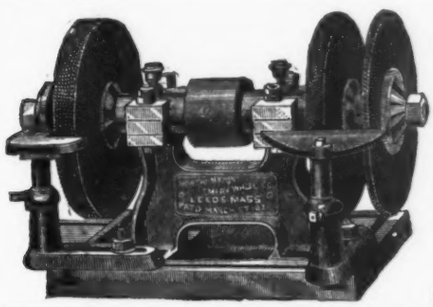

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THIS IS NO EXPERIMENT,

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for any class of work. Sample of Tinned Cast Iron on application.

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By our various processes we can insure satisfaction for the greatest variety of work.

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FOR LOWEST PRICES on Wheel Barrows, Eave Trough, Conductor Pipe Hangers, write to

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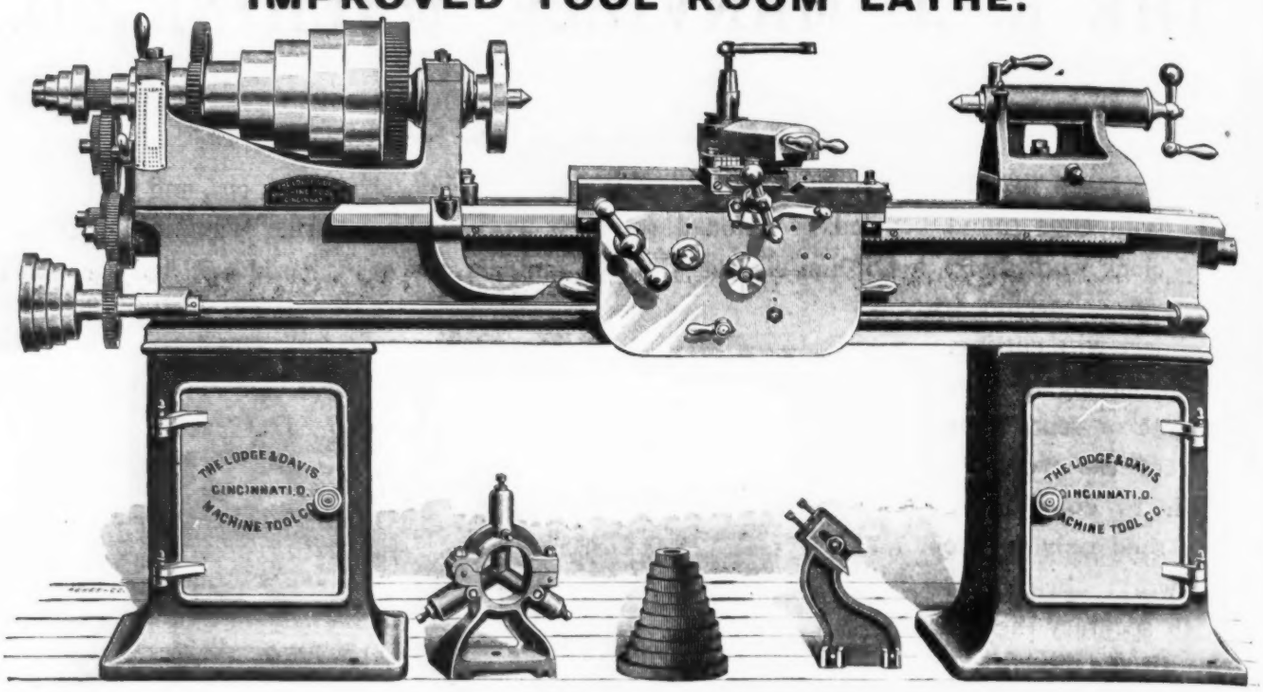

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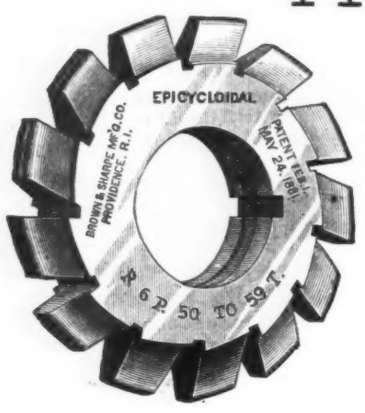

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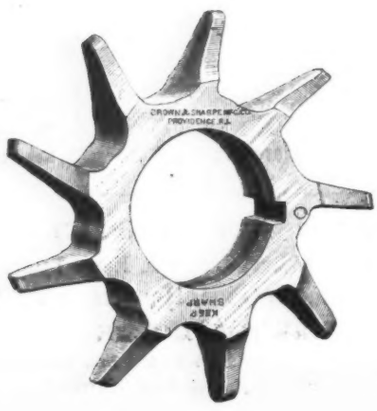

The second Cutter illustrated, originally similar in appearance to the first, but ground away by repeated sharpening, has cut 467 4 pitch, 64 teeth, 3-inch face cast iron gears, making a total length of cut of 7,472 feet. The teeth of the gears were cut from solid blanks and finished in one cut.

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For Sale at low Figures.

1 Heavy Shear, to cut 1 in. x 6 in. Bement.
1 " Punch, to punch 1 in. x 1 in. Bement.
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1 Single Shear, to shear ¾ in. x 4 in.
2 24 x 24 x 5 Iron Planers, Lathe & Morse.
1 30 x 30 x 6 Iron Planer, Sellers.
1 20 x 20 x 4 " " "
3 18 x 8 Lathes, Lathe & Morse.
1 36 x 36 x 16 Planer, Whitcomb.
1 36 x 36 x 24 " "
1 52 x 36 x 12 " Rochester.
1 27 x 12 Lathe, New Haven.
1 36 x 20 " Perkins.
Lathes, Shapers, Planers, Drill Presses, Milling Machines. All sizes.

We have the following new tools for immediate delivery.

16 in. Tool Room Lathes.
18 in. x 6 ft. and 8 ft., Standard Engine Lathes.
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14 in. x 6 ft. and 8 ft. Plain Engine Lathes.
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36 in. x 36 in. x 8 ft., 10 ft. and 12 ft. Planers, Double Head.
20 in., 24 in., 28 in. and 32 in. National Drills.
20 in., 25 in., 28 in., 32 in. and 40 in. Standard Drills.
12 in., 15 in., 18 in., 21 in. and 36 in. Turret Lathes.
12 in. and 15 in. Speed Lathes.
14 in. and 15 in. Fox Monitor Lathes.
15 in. x 6 ft. Square Arbor Lathes.
18 in. Cabinet Turret Lathes
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Universal and Plain Milling Machines.
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Bolt Cutters.
Sensitive Drills.

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Improved Iron, Steel and Brass Working Machinery.

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90 in. x 18 ft. Heavy, Triple-geared, Compound Rest, Cross Feed. A1 order.
34 in. x 11 ft. Heavy. Good order. Low price.
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18 in. x 8 ft. Rod and Screw. New Haven. Fair, cheap.
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48 in. x 11 ft. Heavy Pattern. Regular Style. Good.
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20 in. Lever Feed, Pratt & Whitney. Good order.
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4 Spindle Gang. Pratt & Whitney. Good order.
Radial, 3 ft., Heavy, Back Geared Cheap. Good order.

SHAPERS.

8 in. Crank, Heavy, Cheap. Good order.
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9 in. " Hewes & Phil., Heavy. Good order.

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Garvin No. 1, Wire Feed Complete. A1 order.
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Ditto, with Chasing Bar and Spring Chuck.
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HORIZONTAL BORING MILLS.

66 in. x 24 ft. Heavy Pattern. For boring Stationary and Marine Engine Cylinders. Low price.
40 in. x 10 ft. Nicholson latest pattern. A1 order.

MISCELLANEOUS.

Boring and Turning Mill, 3 in. Bridgeport. A1 order.
Slotter, 8 in. stroke. Modern Style. Good order.
Pipe Machine, 4 in., complete with dies. Good order.
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Upright Hammer, 60 lb. Good order.
Boiler Rolls, 6 ft. 6 in., Extra Power. Good order.

Large stock Improved New Tools, leading standard makes.

J. J. McCABE,

Successor to E. P. Bullard's N. Y. Machinery Warerooms,
68 Cortlandt Street, New York.

FOR SALE.—New Hoisting Engines. Immediate delivery.

1 7 in. x 10 in. Hor. Hoisting Engine. Double cylinder, double drum with boiler and attachments. (Mundy Friction.)
1 6¾ in. x 8 in. Hor. Hoisting Engine. Double cylinder, double drum with boiler and attachments. (Mundy Friction.)
1 7 in. x 10 in. Hor. Hoisting Engine. Double cylinder, single drum with boiler and attachments. (Mundy Friction.)
1 6¾ in. x 8 in. Hor. Hoisting Engine. Double cylinder, single drum with boiler and attachments. (Mundy Friction.)
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1 6 in. x 6 in. Vertical Hoisting Engine without boiler. (Mundy Friction.)

L. F. SEYFERT'S SONS.
437-441 N. 3d St., Philadelphia, Pa.

MACHINERY IN STOCK.

Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 26 ft., triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

Taper Engine Lathes, 14, 16 and 18 in. x 6, 8, 10, 12 ft.; 20, 24, 28, 30 in. x 10, 12, 16 and 20 ft.

Square Arbor Fox Lathes, 14 in. x 5 ft.; 15 in. x 6 ft; 18 in. x 6.

Fox Monitor Lathes, 14 in. x 6 ft.; 15 in. x 6 ft.; 16 in. x 6 ft., 18 x 6.

No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
No. 3, 4, 5, 6 Power feed " "
No. 5 and 6 " " " " clutch back gear.

20, 22, 24, 28, 30, 32, 36, 38, 40 and 45 in. Drill Presses.

Crank Shapers, 6 in., 8 in., 10 in., 12 in., 15 in., 16 in., 17 in., 20 in., 24 in., 28 in., adjustable stroke.

Friction Shapers, 15, 16, 20, 22, 30, 32 in.

Iron Planers, 16 in. x 16 in. x 3 ft.; 20 in. x 20 in. x 4 ft.; 24 in. x 24 in. x 6 ft. and 8 ft.; 30 in. x 30 in. x 6, 8, 10 and 12 ft.; 36 in. x 36 in. x 12 ft.; 44 in. x 48 in. x 22 ft. 6 in.; 52 in. x 50 in. x 17 ft.; 72 in. x 60 in. x 15 ft. and 60 in. x 49 in. x 24 ft.

C, D and E Horizontal Boring Machines, Newark Machine Tool Co.

50 in. Single Head Boring and Turning Mill.
72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-band.
60 in. Vertical Boring Mill. Second band. L. W. Pond.

Send for list of new and second-hand Machinery.

PRENTISS TOOL & SUPPLY CO.,

115 Liberty Street, New York.

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Planer, modern, almost new,	34 x 30 x 8 ft.	$675.00
" " "	22 x 20 x 4½ ft.	350.00
Lathe " "	30 x 12¾ ft.	575.00
24 in. x 16 ft. Putnam Lathe.		275.00
27 in. x 24 in. x 7 ft. Planer. Modern rebuilt		425.00
34 in. Barnes' Drill, Bk. Gd. St. Feed. New		275.00
28 in. " " " "		245.00
1 1 in. to ¼ in. Bergen bolt Cutter.		125.00
No. 2 Power Press, Wt. 1400 lbs. New		150.00

Engines, Boilers, Pumps, Shafting, Hangers and Machinery.

AMER. TOOL WKS., Cleveland, O.

SECOND-HAND

MACHINISTS' TOOLS.

1 Planer, planes 16 ft. long, 62 in. x 62 in.
1 Planer, planes 8 ft., 32 in. x 30 in.
1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 5 ft. 24 in. x 24 in.
1 Engine Lathe, 16 ft. bed, 84 in. swing, for Boring and Turning.
1 Engine Lathe, 10 ft. bed, 28 in. swing. Ames make.
1 Engine Lathe, 11 ft. bed, 23 in. swing.
1 Engine Lathe, 10 ft. bed, 24 in. swing. Old style.
2 Engine Lathes, 8 ft. bed, 18 in. swing. Good.
2 Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 475 lbs. Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¼ in.
And various other tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort St., New York

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Second-hand Machinery.

Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers' Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

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Russell Automatic Engine 11 in. x 16 in.
Porter and Allen Automatic Engine 12 in. x 20 in.
Phœnix Automatic Engine 10 in. x 12 in.
Phœnix Automatic Engine 15 in. x 16 in.

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RARE CHANCE.

A MACHINE SHOP

OF

Second-Hand Tools

For Sale SINGLY.

MOSTLY FITCHBURG TOOLS.

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PHILADELPHIA, PA.

N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

14 in. x 6 ft. Engine Lathe, screw front, double T rest.
15 in. x 4 ft. Engine Lathe, screw back, double T rest.
15 in. x 6 ft. Engine Lathe, screw back, gauge attachment.
16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in. x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest.
16½ in. x 6 ft. Engine Lathe, screw front, compound rest.
17 in. x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17½ in. x 4 ft. Engine Lathe, screw back, double T rest.
17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
17¾ in. x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
21⅝ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 10 ft. Engine Lathe, screw back, double T rest, cross feed.
22 in. x 16 ft. Engine Lathe, screw front, double T rest.
25 in. x 14 ft. Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1⅜ in. holes with 12 in. diam. 3-jaw combination chuck.
13 in. x 6 ft. Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No. 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

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31 N. Seventh St., Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

5 clay and ore pans, 11 rail, bar, sheet and clipping shears, 23 hoisting engines, 41 stationary and portable boilers, 48 stationary and portable engines, 12 steam and 9 centrifugal pumps, 3 air compressors, one standard gauge road engine and one standard gauge shifting engine.

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DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope. Double, 8¼ x 10 in., with Double Drums. Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

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New Machinery in Stock.

Lathes.

1 32 in. x 16 ft. Fay & Scott. Compound Rest.
1 28 in. x 12 ft. " " " "
1 24 in. x 24 ft. Forsaith. Compound Rest.
1 24 in. x 12 ft. Dexter. Compound Rest.
1 24 in. x 10 ft. Forsaith. Complete.
1 24 in. x 10 ft. Dexter. Compound Rest.
1 22 in. x 12 ft Fifield. Compound Rest.
1 21 in. x 12 ft. Dexter. Compound Rest.
1 20 in. x 13 ft. Hubbard. Compound Rest.
1 20 in. x 8 ft. Forsaith Compound Rest.
1 18 in. x 12 ft. Dexter. Compound Rest.
1 18 in. x 6 ft. Forsaith. Compound Rest.
1 17 in. x 6 ft. Forsaith. Complete.
1 16 in. x 8 ft. Dexter. Power Cross Feed.
1 16 in. x 8 ft Blaisdell. Raise and Fall Rest.
1 16 in. x 8 ft. Porter. Complete.
1 16 in. x 6 ft. Blaisdell. Raise and Fall Rest.
1 16 in. x 6 ft. Dustin & Hubbard. Complete.
1 16 in. x 6 ft. Dexter. Power Cross Feed.
1 16 in. x 6 ft. Porter. Complete.
2 15 in. x 6 ft Porter. Complete.
1 14 in. x 6 ft. Sebastian-May.
1 14 in. x 6 ft. Prentice. Complete.
1 12 in. x 5 ft. Sebastian-May.
2 10 in. x 4 ft. Reed. Complete.
1 13 in x 5 ft. Speed Lathe.
4 10 in. x 4 ft. Speed Lathes.
1 9 in. x 43 in. Star Lathe, Foot or Steam Power.
1 9 in. x 54 in. Star, Foot or Steam Power.
2 8 in. x 36 in. Foot Lathes.

Planers.

1 36 in. x 30 in. x 12 ft. Davis.
1 30 in. x 30 in. x 8 ft. Davis.
1 24 in. x 24 in. x 6 ft. Davis.

Drills.

9 32 in. Davis, B. G. & S. F.
1 28 in. Blaisdell, B. G. & S. F.
1 28 in. Snyder.
20 25 in. Davis, B. G. & S. F.
1 25 in. Snyder.
1 24 in. Schumaker, B. G. & S. F.
1 24 in. Blaisdell, B. G. & S. F.
15 20 in. Davis, Standard.
4 20 in. Davis, B. G.
1 16 in. Bench Drill.
2 12 in. Davis. Semi-Sensitive.
2 Woodward & Rogers.

Shapers.

1 20 in. Juengst, Friction.
1 20 in. " Crank.
1 15 in. " Friction.
1 15 in. " Crank.
1 15 in. Davis Crank.
1 12 in. Boynton & Plummer.

Milling Machines.

1 No. 4½ Garvin.
1 No. 3 Garvin

Cutting-off Machines.

1 each 3 and 4½ in. Davis.

W. P. DAVIS,
Rochester, N. Y.

See list of Second-hand Machinery next issue.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spinning Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 10 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
30 in. x 19 in x 4 ft. Planer.
31 in. x 26 in x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines
16 in. Wood Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,

143 Liberty Street, N. Y. City.

BARGAINS FOR CASH.

Write for Prices.

1 53 in. x 30 ft. Second-hand Lathe.
1 50 in. x 22 ft. " "
2 No. 9 Pulsometer Pumps.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second hand.
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 No. 1 Root Blower.
1 2 H.-P. Shipman Oil Engine.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " "
2 42 in. x 11 ft. " Boilers "
1 1 H.-P. Acme Oil Engine.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " " "
1 4 H.-P. Baxter Engine and Boiler.
1 15 H.-P. Shapely " " "
2 34 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P. Horizontal Engines and Boilers. New and Second Hand.
1 20 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft Porter Lathe. New.
1 15 in. x 6 ft Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " 7 ft. " "

LOVEGROVE & CO.,
Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in. swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,
156 Oliver Street, Boston, Mass.

FOR SALE.

Four 100 H.-P. Horizontal Tubular Boilers.
Two 80 H.-P. Horizontal Tubula Boilers.
One 75 H.-P. Horizontal Tubular Boiler.
Two 60 H.-P. Horizontal Tubular Boilers.
One 40 H.-P. Horizontal Tubular Boiler.
One 50 H.-P. Locomotive Fire Box Boiler.
Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.

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Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,
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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

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Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

WM. H. PERRY & CO.,
Providence, R. I.

FOR SALE.

New and Second-Hand

METAL WORKING

MACHINERY.

Send for list of same for immediate delivery.

Wanted to Purchase for Cash,

Second-Hand

Metal Working Machinery.

Geo. Place Mch. Co.,

120 Broadway, New York.

VERTICAL BLOWING ENGINE FOR SALE.

30 in. diam. steam cylinder, 62 in. air cylinder, stroke 5 feet, in good condition. Price reasonable.

ROCK DRILLS 5 in. to 1¾ in; **LIGHT LOCOMOTIVE** 36 in. gauge; **STEAM SHOVEL; AIR COMPRESSORS.**

F. W. IREDELL,
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900 Tons New Cast Iron

WATER PIPE

10, 14, 16, 16½ and 20 inch,

At a Big Sacrifice.

Speak Quick If You Want It.

Thos. P. Conard,
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FOR SALE.

SECOND-HAND,

1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

The Powell Planer Co.,
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FOR SALE.

WAGON SKEIN PLANT.
LONG ARM AXLE PLANT.

Patterns, Machinery and Tools. Also Wagon Box Patterns.

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FOR SALE.

35 lb. and 30 lb. T rails, second-hand, suitable for relaying; four miles with fastenings, by

MANOGUE-PIDGEON IRON COMPANY,
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FOR SALE.

One pair Howe Truck Scales, four beams, 34 feet long, weight 122,000 pounds. As good as new.

THE COLUMBUS IRON & METAL CO.,
Columbus, Ohio.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5¾.

ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.

Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2-12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. J. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

Bargains for cash before removing to our new store, 46 N. 7th St.

One 10 x 24 Horizontal engine. A No. 1 condition.
One 4 x 4 " " "
One 8 x 14 Vertical " " "
One 6 x 6 " " New.
One 7 x 7 " " "
One 5 x 6 " " "
One 6 x 7 " " "
One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.

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FOR - SALE - CHEAP.

Deane Piston Pump, 6 in. suction 4 in. discharge, almost new.
Address

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FOR SALE.

One 21 in. x 13 ft. Lodge & Davis improved Engine Lathe. Complete.
One 24 in. x 30 ft. Fifield Engine Lathe. Complete.
One 3 ft. Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.

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BESSEMER PIG IRON

3000 tons No. 1 Bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

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STEEL RAILS.

We offer 100 tons second hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).

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1 2000 lb. double standard Bement Steam Hammer with Anvil and Extra Piston Rod. Hammer is in first-class condition. Immediate delivery
100 lb. Bradley Cushion Hammer.

Geo. Place Mch. Co.,

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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

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FEED-WATER HEATERS,

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

BENJ. F. KELLEY & SON,
Liberty St., New York.

FOR SALE.

Large lot of Loco. Boilers, 50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

Second-Hand
Boiler Tubing

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.
Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address
Wm. F. Jarvis & Co.,
Detroit, Mich.

FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.

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FOR SALE.

CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

Large Planer, For Sale Cheap.

Built by D. W. FOND.

20 ft. bed., 43 inches between housings (extra heavy). Latest make, only used one year. Apply to

J. NUTTALL,
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CHARCOAL
IRON BLAST FURNACE.
FOR SALE OR LEASE.

A 50 ton Iron Furnace, with charcoal ovens, tramway to our fields, pipe line to reservoir, switches connecting with trunk railroad at its site. A most complete plant in every detail. For information address

EDW. S. MAUNSELL,
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FOR SALE.
Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.

THE GOULDS MFG. CO.,
Seneca Falls, N. Y.

—: CORLISS :—
Automatic Engines

—ALSO—

Electric Light, High Speed and Slide Valve Engines in first-class condition for immediate delivery at very low prices.

1 30 x 72 Corliss Condensing Engine.
1 Pair Corliss Condensing Engines, 20 x 48.
1 23 x 36 Corliss Engine.
1 20 x 48 Corliss Engine.
1 16 x 42 Corliss Engine.
1 12 x 36 Corliss Engine.
1 Pair Woodruff & Beach Condensing Engines, 20 x 48.
2 11 x 20 Buckeye Engines.
1 14 x 24 Buckeye Engine.
2 13 x 12 Armington & Sims.
Slide Valve Engines, 11 x 24, 10 x 16, 10 x 12 and 8 x 8.

Several Steel Tubular Boilers 50 to 125 H.-P. also, several sizes Pumps, Rock-Drills, Fan Blowers, &c., &c. Send for Circular.

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FOR SALE. SECOND-HAND.

Sturtevant Blowers, No. 4 to No. 80. Large stock.
Backus Exhaust Fans, size E, 42 inches.
Berryman Feed-water Heater, 9 in. exhaust, 44 in. diameter, 8 ft. high.
Barawawagnath Heaters, 1½ in. feed, 8 in. Exhaust.
Lighthall Surface Condenser, 882½ in. Tubes 8 ft. long.
Otis and Reedy Elevators.
Julian Storage Battery, 55 cells, 2 volts, 200 Amps.

"Giant" Railroad Excavator and Wrecker
Built by Vulcan Iron Works Co., of Toledo, O.

This Excavator is mounted on 33 foot Standard Gauge Car, and has a capacity of 1500 to 2000 yards. Has seen very little service. Will sell low or will rent to responsible parties.

Rand & Rattler Rock Drills, with and without Tripods
Extra Heavy Bushnell Knuckle Joint Press.
10 to 100 H.-P. Boilers, 1 to 500 H.-P. Engines.
Pumps, all makers and sizes and general machinery

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers, 6 spindle for ⅜ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer, 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern
2 Heaters, medium and large size.
1 No 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock & Foster Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.

W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

WANTED.

SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.

"MANUFACTURER," P. O. Box 1840,
New York, N. Y.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler, eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small. "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

Changed Weekly.

— PLANTS. —

WANTED.—By Philadelphia Machinists employing 75 hands, new location nearer New York.

FOR SALE.—Tack Works, 25 Machines, Illinois.

WANTED.—Location for Polished Rod Manufacturer, within 100 miles of New York; building about 100 x 30 with one or two wings preferred. Send for names of above.

FOR SALE.—Vineland, N. J., by R. S. Armstrong's Sons foundry and machine shop, on two Railroads, buildings 60 x 90, acre of land. Depot across the street. Splendid location for light manufacturing, being near Philadelphia and New York.

— FOR SALE. —

BOLT HEADERS.—Five new, two second hand, made and owned by Samuel Hall's Sons, 229 West 10th Street. Will make all kinds of bolts; will make square and hexagon without changing tools; will make round, square, button head, round or square under the head; will head rivets; will head from ¼ to 1¼ inch inclusive. These are made in the strongest manner and for service. If you can use or sell write them direct, or the undersigned.

CARS, Flat, 12 Penna. R. R. Standard.

ENGINE, Roper, 5 H.-P. Offer wanted.

GAS ENGINES, 5 and 10 H.-P., new, guaranteed, perfect order, will put in on trial within reasonable distance. By Pennsylvania Diamond Drill Co.

TO TOOL MAKERS, have large lot of seasoned Dogwood and Persimmon Blocks, sawn to sizes. Can you use them?

STREET CAR, combination, half open, half closed.

LOCOMOTIVE, 33 in., saddletank. Perfect order. Pa.

PIPE, 6 inch flange, good.

WIRE for bundling, different sizes.

CARS dump, 20, side, 2 and 5 yds.

RAILS, 16s, 20s, 30s, fit to relay.

HARDWARE DEALERS, BIRD CAGE MANUFACTURERS have two highly finished racks made by Mitchell, Vance & Co. for an exhibition, about 15 feet high, 25 arms each, which will be sold at a low price.

—Agents Wanted.—

WAECHTER, LANE & CO., Canton, Ohio, on their Small Steam Pumps, claimed to be at least equal to any made and a boon to agents.

PENNSYLVANIA DIAMOND DRILL CO., Birdsboro, Pa., for their Diamond Prospecting Drills. Liberal inducements offered.

W. R. SANTLEY & CO., Wellington, Ohio, for their well known Belt Holder. Thousands in use and every one a recommendation.

HARKINS FOUNDRY CO., Bristol, Pa., for their unexcelled dumb bells, quoits and specialties in hardware.

— WANTED. —

Correspondents in every town and city to whom I can send lists of what is offered me for sale and to whom I can offer agencies for articles that are sent me. Let me hear from you.

H. H. Mansfield,
126 Liberty St., N. Y.

Wrought Iron Tanks For Sale.

1 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,

59-73 West St., - Brooklyn, N. Y.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

THOMSON-HOUSTON MOTORS FOR SALE.

One 35 H.-P., one 20 H.-P., T. & H. Motors, second-hand, in perfect condition, for sale cheap.

NEW BEDFORD IRON FOUNDRY,
New Bedford, Mass.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

TO LET.

The Engine Works at Newburgh, N. Y., at present occupied by Wm. Wright, is offered to let from May 1st, 1892.

The property consists of machine shop, foundry, boiler, forge and pattern shops with a full equipment of tools.

The works are located in the heart of the City and convenient to railroad and river transportation. For terms apply to

HOMER RAMSDELL,
Newburgh, N. Y.

WANTED.

Foundry Superintendent. Must be thoroughly conversant with the melting of iron, also the various mixtures for different kinds of work. Must have a thorough knowledge of molding, core making, &c. Also competent to manage workmen and arrange prices for work. No one need apply unless he can furnish strictly first-class references. Address "SUPERINTENDENT," P. O. Box 1165, New York, N. Y.

FOR SALE. WELL EQUIPPED Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

P. O. BOX 1119, New York.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c; ready to start up at once; will be sold at about half price. Address

T. C. KERRICK,
Bloomington, Ill.

Wanted, Manufacturers.

FREE SITE, CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants,* in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties.* We are *not bound* to *any locality* and will give *unbiased information* on application.

Write for proposition blank.

AMERICAN LOCATING CO.

(INCORPORATED),

41 & 41A Nat. Ger. Am. Bank Bldg.,
St. Paul, Minn.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

$10,000 TO $100,000

In **CASH AND FREE SITE IN** the heart of the **COAL REGIONS** of **WESTERN PENNSYLVANIA** for a reliable manufacturing concern. Iron or steel industry preferred. **COAL DELIVERED BY THE QUANTITY AT LESS THAN ONE DOLLAR PER TON.** Write for particulars.

C. T. BEECKMAN,
136 Fifth Ave., Pittsburgh, Pa.

FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and Stove Plate. Correspondence solicited.

WM. D. BENNAGE & CO.,
2213-2215 Hamilton St., Philadelphia.

GREAT BARGAIN.

Large manufacturing plant, with three acres of land, at Pearl River, N. Y., 27 miles from New York City. Opposite Railroad Depot, two-story brick buildings, 300 feet long, with ample land for enlargement, with side track, &c. Well lighted all around; with 80 H.-P. engine and boiler, shafting and pulleys, iron melting furnace, cheap labor and freights. To be sold at a sacrifice to close an estate. For particulars apply to J. H. BRAUNSDORF, Executor, Pearl River, N. Y.

WANTED, Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired. "A. B.,"
office of *The Iron Age*, 116 Franklin St., Boston, Mass.

FOR SALE

A good new manufacturing business fully equipped, requiring only a limited capital. Address

GEORGE N. MORSE,
Meriden, Conn.

IRON and STEEL or MACHINE

Works desiring a **SPECIALTY.** Exclusive territory granted. Address "SPECIALTY,"
Office of *The Iron Age*, 220 So. Fourth Street Philadelphia, Pa.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points.

ADDITIONAL CAPITAL ALSO PROCURED

WAITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.

OR CHAMBER OF COMMERCE BLDG, CHICAGO THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Peremptory Auction Sale.

FOR ACCOUNT OF WHOM IT MAY CONCERN.

Laboratory Appliances, Chemical Apparatus and Fixtures of a Chemical Works, lot of Crucible Steel Scrap, &c., property of the late Imperial Steel Co., to be sold at the Frankford Steel Works, Orthodox St., and Frankford Creek, on Wednesday morning, May 4th, 1892, at 10 o'clock.

ELLIS & SHAW,
735 Walnut St., Philadelphia.

For catalogues apply to the auctioneers.

Wheel, Axle and Iron Manufacturers and Capitalists.

Your attention is called to the following.

Two very valuable patents touching wheel and axle manufacturers and the iron trade are now offered for sale. One is an improvement in axle arms consisting of four concave depressions so arranged in the arm that they lessen friction and automatically lubricate it (the arm). The other is one of the most valuable patents ever issued. It gives to the owner a monopoly over a certain branch of business that has not been equaled in this century. This patent consists of a hub made from malleable iron, steel or other suitable metal, so made that in connection with an axle arm of suitable dimensions, &c., it does away with the projecting hubs of wheels that are now so common and annoying. It is no idle fancy to think and say that when this hub is introduced all others will disappear. Wheels made with this hub will be the nearest approach to perfection ever made in that line. To secure control of this patent is to secure a fortune. These patents will be disposed of singly or together, they will be sold outright or stock taken in a company organized for their manufacture. For further particulars address

PETER McMENAMIN,
273 Fifth St., Jersey City, N. J

FOR SALE CHEAP.

One 14 x 20 Russell Automatic Engine, with line shaft and friction clutch pulleys, nearly new.
One 8½ x 8 Westinghouse engine. Both taken in exchange for Ideal engines.
One 21 in. Steptoe Lathe.
One 18 in. Star Tool Co.'s Lathe.
One 36 in. back geared New Haven Drill.

A. L. IDE & SON.,
Springfield, Ill.

FOR SALE.

Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.

The Lodge and Davis Machine Tool Co.,
Cincinnati, Ohio.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,
Suburban Traffic Agt., 317 BROADWAY, N. Y.

Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

MAHONING FOUNDRY AND MACHINE SHOP.
Danville, Pennsylvania.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish; no trade. For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

WANTED,

Something to Manufacture.

A New York manufacturer of Light Hardware, having greater facilities than necessary for their present line, desires to add some specialty or patented article to be finished complete from raw material if necessary. Address "H. H.," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

STOCK OF HARDWARE

And Fixtures, all new and well assorted, invoicing about $8000, or can be reduced to suit purchaser. Located in West Duluth, Minn. A splendid opportunity to buy an established business in a growing manufacturing town. Sales last year, $40,000.

CHAPIN-WELLS HARDWARE CO.,
Duluth, Minn.

WANTED.

To communicate with the owners of a modern Coke Blast Furnace, who are open to a proposition to move it to the best location in the country,

"COKE BLAST FURNACE,"

office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE.

The stock and fixtures of a first-class hardware store doing a good business and nicely located. For further particulars apply to

BOX 233, Bristol, Pa.

IF FROM ANY CAUSE

You have goods to offer at specially low figures for **SPOT CASH**, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of **SPECIAL LOTS,**
75 Chambers St., New York.

Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

FOR SALE.

One 32 in x 48 in Corliss Engine; has 14 in. forged shaft, 23 feet long and 50,000 pound fly wheel, all in first class order. Address

J. A. VAIL,
13 So. Fourth Street, St. Louis, Mo.

ARCHITECTURAL FOUNDRIES

In every large city wishing to manufacture upon a royalty Duvinage's **system of anchor plates and caps of post** for self-releasing beams in building construction address

P. DUVINAGE & CO.,
371 Fulton St., Brooklyn, N. Y.

WANTED.

Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

GAYNOR & MITCHELL MFG. CO.,
Bridgeport, Conn.

WHAT DO YOU WANT TO BUY?

We will send without cost to you, Catalogues, Price-Lists and information concerning anything you wish.

PARET, WILLEY & CO.,
265 Broadway, New York, N. Y.

FOR SALE.

STANHOPE FURNACE, with 138 acres of farm land, houses, &c. A large creek of pure water runs through the place. On line of S. & T. R. R. three miles from Pinegrove, Pa. For further particulars, address

F. L. COOCH,
BESSIE C. FOX,
Administrators.

Pottsville, Pa.

TO MANUFACTURERS.

The Secretary of an old established manufacturing concern in Detroit, Mich., whose goods are sold very generally by the Hardware and Woodenware trade in the States of Michigan Ohio and Indiana, and who personally visits and is largely acquainted with both the jobbing and retail trade in the above territory, desires to arrange with two or three responsible manufacturing concerns, whose goods sell to the same trade, to handle their lines on commission. Would like agency of Black or Galvanized Sheet Iron. Pieced or Stamped Tinware or Sheet Metal Specialties, Oil Stoves, Hardware or specialties of any kind. Address "B. J. N.," care of Carrier "Emmons," Detroit, Mich.

WANTED.

About 200 feet 5 and 6 inch good second-hand shafting. Address

THE CINCINNATI BARBED WIRE FENCE CO.,
Cincinnati, Ohio.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & CO., and E. BISSELL & CO.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
Send for Catalogue.

143 Chambers St., New York.

FOR SALE.

Punching and Shearing Machinery.

Hand and Belt Power.

Boiler Makers' Rolls.

NEW DOTY MFG. CO.,
Janesville, Wisconsin.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

BOOKKEEPER and cashier in a manufacturing business in Brooklyn; good pay, permanent situation and opportunity for advancement in other capacity to a man possessing satisfactory qualifications and not over 30 years old New York City or Brooklyn references. Address "B. & C.," office of *The Iron Age*, 96-102 Reade Street, New York.

A MAN EXPERIENCED in machinery as business manager for a large manufacturing company. Address, stating age experience, reference and salary required, "M.," office of *The Iron Age*, 220 So. 4th Street, Philadelphia.

TRAVELING SALESMAN now visiting hardware and tool trade to carry as side line superior article; low price and quick seller, small samples, good commission, exclusive sale, benefit of future orders; state territory covered and give reference Address "W. Q. C.," office of *The Iron Age*, 96-102 Reade St., New York.

A GOOD REPRESENTATIVE to sell steel castings in the following cities; Buffalo, Pittsburgh, Detroit, Cincinnati, St. Louis and Chicago; must furnish best of references. Address "GOOD REPRESENTATIVE," office of *The Iron Age*, 96-102 Reade St., New York.

A FIRST-CLASS all-around office man, thoroughly posted in plumbers' and steam-fitters' tools and supplies; must be competent to act as assistant buyer, answer correspondence, &c. Address "OFFICE MAN," office of *The Iron Age*, 96-102 Reade St., New York.

TRAVELING SALESMAN now on the road in Northern and Western States, visiting the hardware trade, to sell good specialty; commission 7½%; state territory, experience and reference. Address "LEVEL," Box 428, office of *The Iron Age*, 96-102 Reade St., New York.

EXPERIENCED and competent Chemist for blast furnace in Virginia; in making application please give reference and state experience and amount of salary required. Address "COMPETENT CHEMIST," office of *The Iron Age*, 96-102 Reade St., New York.

TRAVELING SALESMAN; must be first-class and experienced in selling nails, merchant iron and steel to the jobbing trade. Address "IRON MANUFACTURER," Box 694, Cincinnati, Ohio.

FOUNDRY FOREMAN immediately; work principally heavy rolling mill, engine castings and rolls; must thoroughly understand making chill and sand rolls and bring best of references; state salary expected. Address LOCK BOX 375, Pittsburgh, Pa.

TRAVELING SALESMEN who have had experience in the hot and cold roll steel business; state age, whether married or single, where recently employed and salary expected for first year. Address "HOT AND COLD ROLLED STEEL," Box 414 office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN to carry Shimer Patented Hollow Handle Post Spade as side line on commission. L. & R. WISTER & CO., Philadelphia, Pa.

SITUATIONS WANTED

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

DRAUGHTSMAN.—Young man with 9 years' experience wishes to make a change; also understands drawing and engraving on wood and pen drawing for photo-engraving; at present has charge of the illustration work of a trade paper; would like a permanent situation with some manufacturing company; references from present employers. Address "C. X.," Box 428, office of *The Iron Age*, 96-102 Reade St., New York.

BY A THOROUGHLY competent hardware man, a position as traveling salesman; have had 15 years' experience in shelf and heavy hardware; willing to work in any territory; A1 references as to ability, sobriety and energy. Address LOCK BOX 34, office of *The Iron Age*, 96-102 Reade St., New York.

SALESMAN wants line of spoons, pocket cutlery or any other good selling line for hardware trade on commission; parties desiring to be represented in the States of Michigan and Wisconsin; good reference Address "HARDWARE," 193 Michigan Avenue, Detroit, Mich.

BY PRACTICAL Steel Roller, position as roller or foreman; capable of taking charge of any department of steel mill. Address "STEEL," office of *The Iron Age*, 96-102 Reade Street, New York.

BY AN ACTIVE middle aged man as superintendent or sales agent; have been superintendent in a large architectural iron, fence and jail works for ten years; have 30 years' experience in wrought iron and foundry work. Address "LONG EXPERIENCE," office of *The Iron Age*, 96-102 Reade St., New York.

BY A MECHANICAL engineer, position as manager or assistant; would travel some; has had practical training and during last fifteen years occupied positions as designer, superintendent, traveler and manager. Address "P. R. I.," box 1044, Providence, R. I.

A FIRST-CLASS practical mechanic on machinery construction, manufacture of specialties, stamp work in sheet metal or tinware would like to hear of an opening as general foreman or assistant superintendent; would take charge of a tool room Address "W. A. C.," care Janitor 508 E 86th St., New York

AN ACTIVE BUSINESS MAN, with considerable experience in the management of iron and coal companies, desires a position of trust and responsibility; is competent to fill an executive or other office. Address "W. W. W.," office of *The Iron Age*, 96-102 Reade St., N. Y.

AS SUPERINTENDENT of Wire Mill; all latest methods of handling the following thoroughly understood; galvanized wire, cloth and netting, brass, copper, iron and steel of every description, crucible and spring steel a specialty; every detail of wire nail business; mills failing to pay preferred; can build mills from foundation; unexceptionable testimonials furnished. Address "WIRE," office of *The Iron Age*, 59 Dearborn St., Chicago.

A GOOD, PERMANENT office position with any good manufacturing or wholesale hardware house; am a practical bookkeeper, stenographer, typewriter operator and all-round office man with six years' experience in the manufacturing and wholesale hardware business; best of references from former employers. Address "ZEAL," office of *The Iron Age*, 96-102 Reade St., New York.

BOOKKEEPER, A1, fifteen years' experience in large companies, desires position; can furnish very best city references. Address "A.," care Hardware Board of Trade, 4 Warren St., N. Y.

BY A PRACTICAL Millwright, experienced in all manner of work in wood and iron; nine years in present position; competent to take charge of any plant; the West preferred. Address "MILLWRIGHT," office of *The Iron Age*, 96-102 Reade St., New York.

MANY MANUFACTURING Companies now employ lawyers in the companies' own offices to draw contracts, &c., keep corporation papers properly and attend to some general matters, so as to prevent litigation and loss; I should like to accept such a position at a fair salary; am 31, eight years a lawyer; have some business experience and knowledge of accounts; own a good law library; best legal and general references. M. I. BROCK, 2025 Wallace Street, Philadelphia.

A MAN of ability and experience with large trade, now representing a sheet iron mill in New York City and State wishes to make a change. Address "B. B.," Box 421, office of *The Iron Age*, 96-102 Reade St., N. Y.

A SUPERINTENDENT and Engineer will soon be available for responsible position in large manufacturing establishment; has had valuable and varied experience in designing, shop management and as superintendent; he has given particular attention to economical designs and methods of production and has had large personal observation, including that of professional visits to European countries. Address "E. D. B." office of *The Iron Age*, 96-102 Reade St., New York.

BY A YOUNG MAN familiar with the hardware trade in Philadelphia and within a radius of 100 miles around that city, including Baltimore and Washington, the agency for several lines of hardware, cutlery or specialties of that nature, either on salary or commission, as may be agreed; unexceptionable references furnished. "HARDWARE" office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

SEAMLESS brass and copper Tubes, Locomotive and Marine Boiler Tubes condenser Tubes, hollow and solid copper Rods, brass Rods, covering Hydraulic Rams; advertiser having twenty years' experience (fifteen years foreman in the manufacture of the above, seeks engagement. Address J. GANNON, 15 Grosvenor Square, Lower Broughton, Manchester, England.

BY A GUIDE MILL ROLLER, who is a steady, intelligent workman on all kinds of guide mill work, iron and steel; also thoroughly understands the draughting and turning of rolls; can bring together a crew of steady and reliable workmen if wanted; best of references can be given. Address "GUIDE MILL WORK," office of *The Iron Age*, 96-102 Reade St., New York.

POSITION of responsibility, by middle aged man, experienced in retail and jobbing hardware, paints, lumber, mill supplies, &c.; used to correspondence, accounts and care of help; best of references. Address "HARDWARE MANAGER," Box 47, office of *The Iron Age*, 96 to 102 Reade St., New York.

AS BLAST FURNACE Superintendent, by energetic young man who is experienced in the metallurgy and practical working of blast furnace on all grades of iron and spiegel; also in selection of material; is experienced chemist. Address "FIRE BRICK," Box 317, office of *The Iron Age*, 95-102 Reade St., New York.

MECHANICAL Engineer with exceedingly good experience in marine engineering, steam and hydraulic machinery, good shop experience, capable of handling men, desires position as assistant superintendent, manager or chief draughtsman in New York or vicinity. Address "MARINE," office of *The Iron Age*, 96-102 Reade St., New York.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

Two Valuable Manufacturing Plants

—TO BE—

SOLD AT AUCTION

Wednesday, May 18, 1892.

THE TALLAPOOSA FURNACE,

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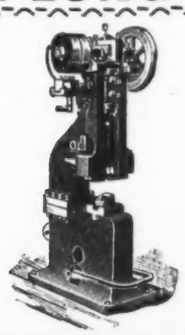

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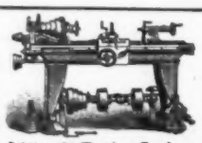

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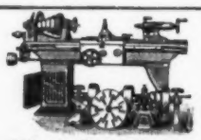

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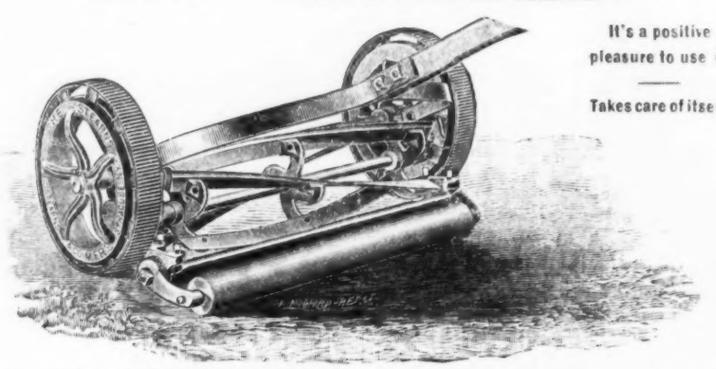

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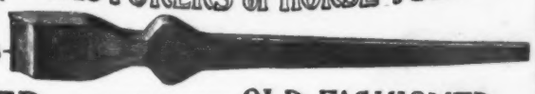

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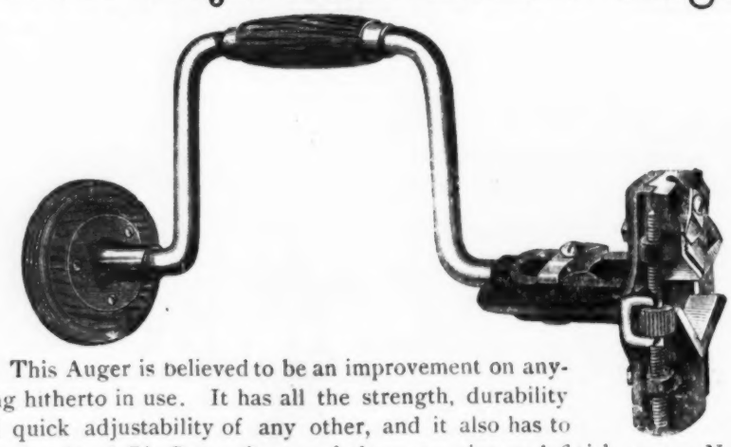

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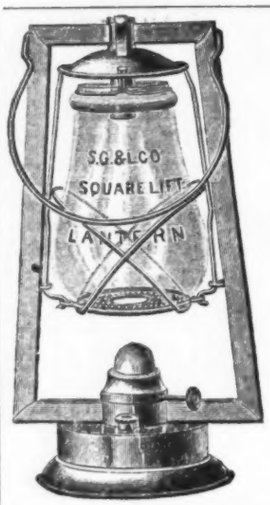

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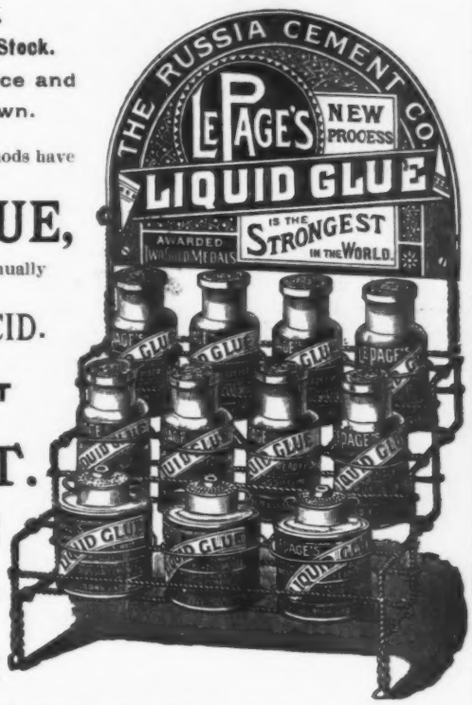

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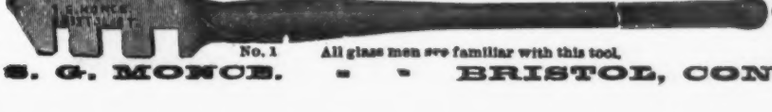

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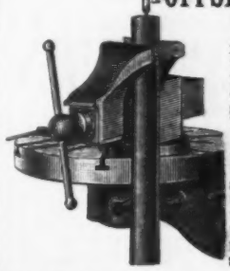

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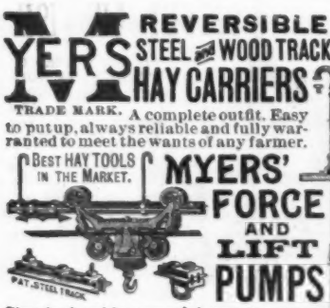

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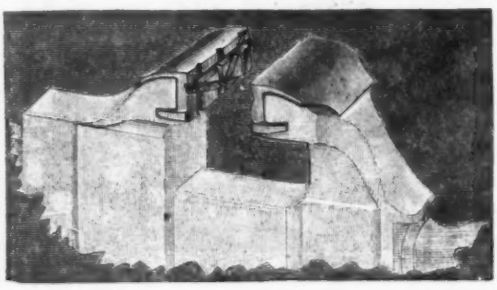

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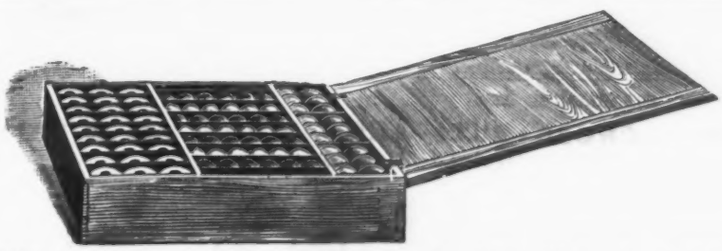

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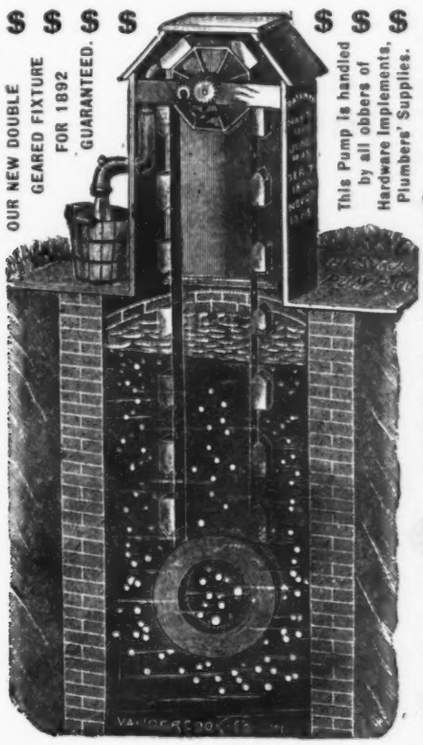

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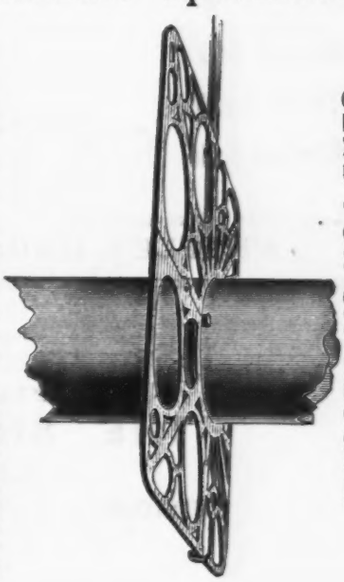

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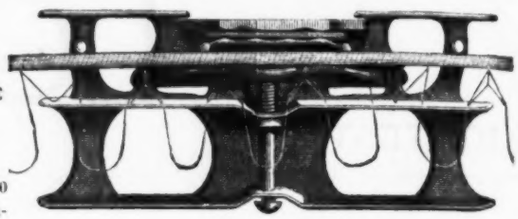

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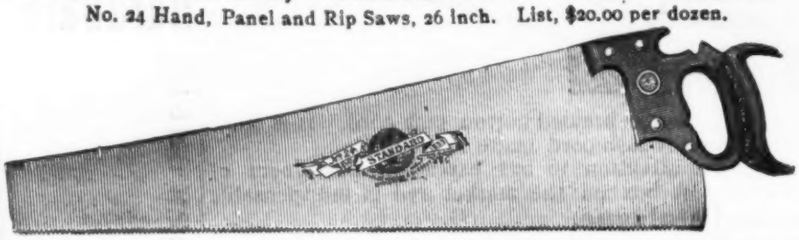

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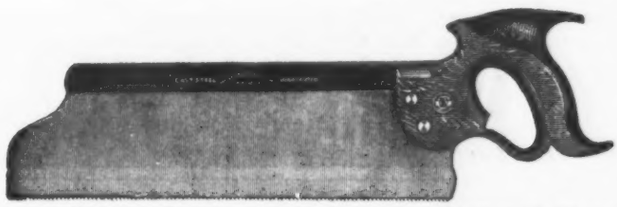

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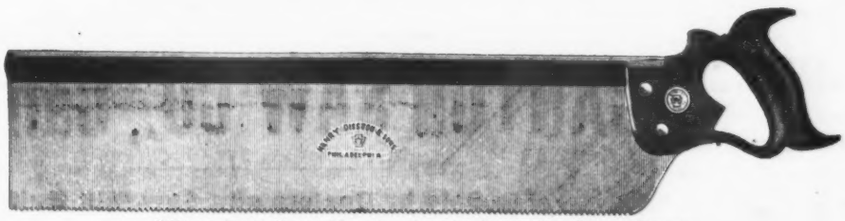

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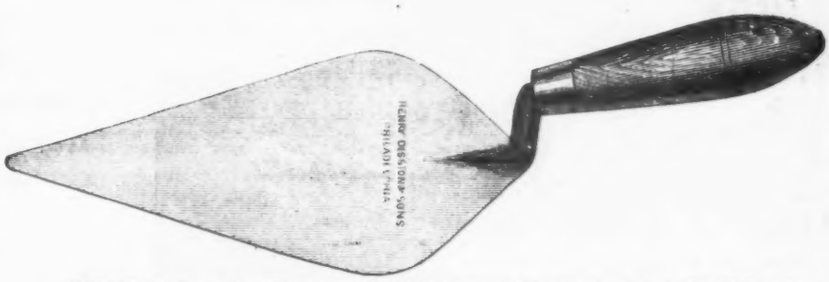

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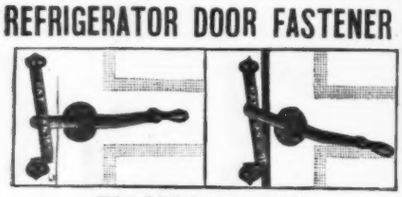

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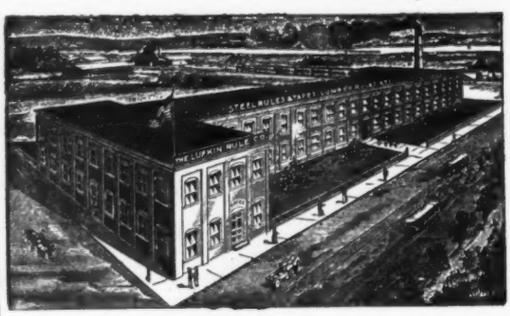

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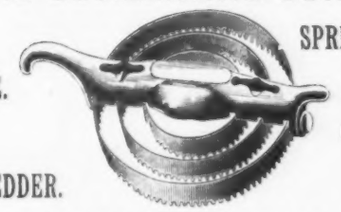

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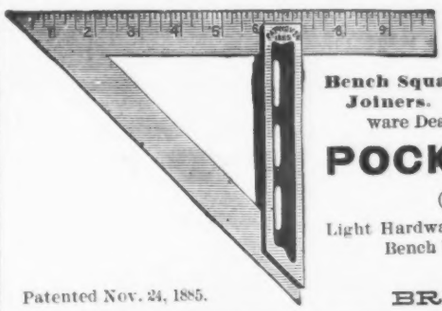

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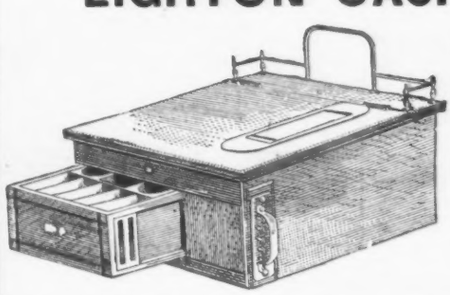

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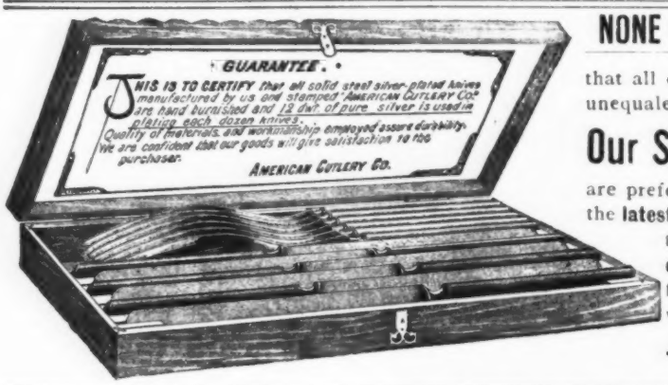

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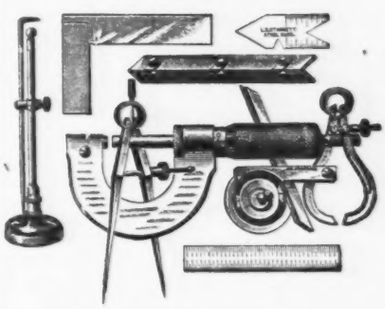

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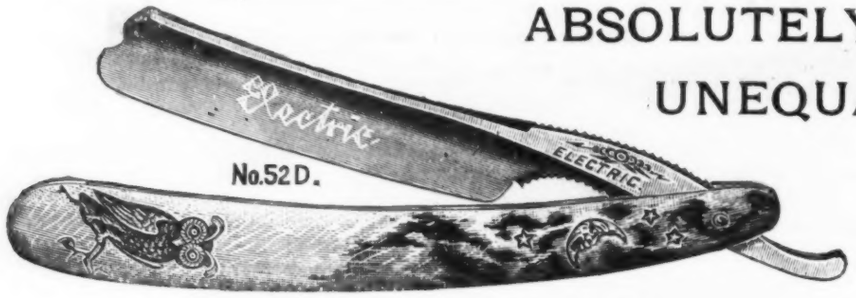

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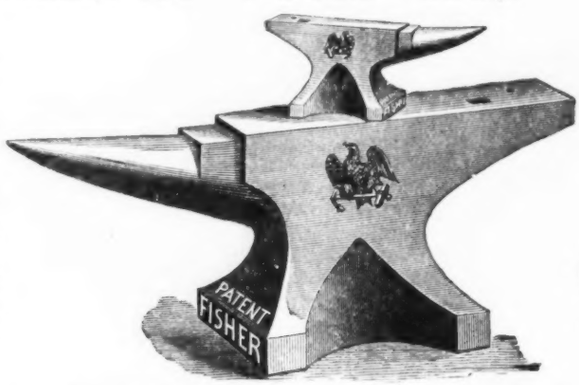

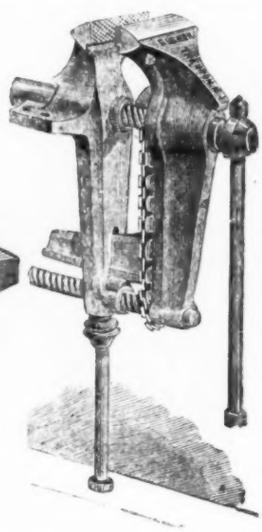

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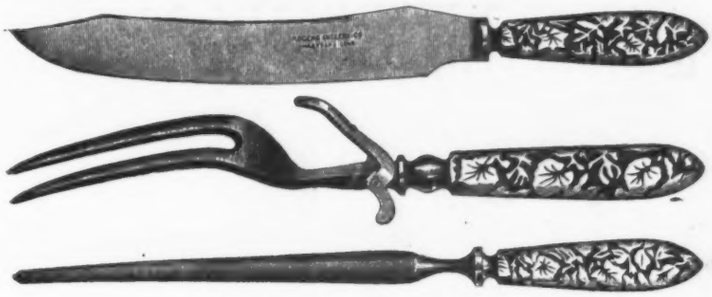

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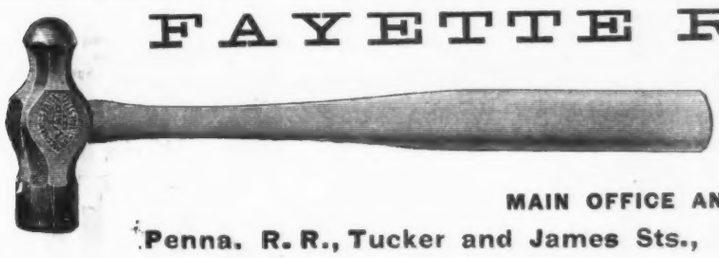

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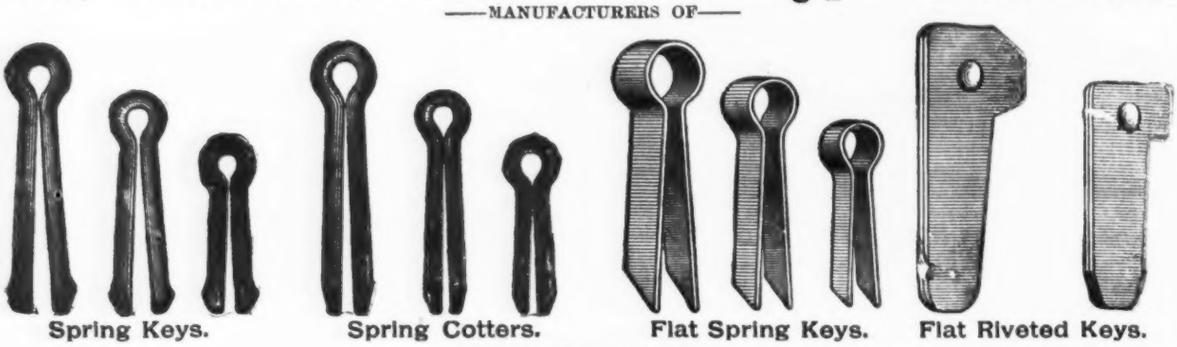

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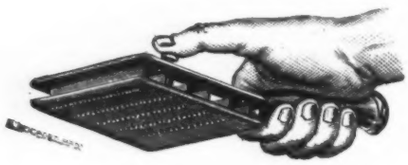

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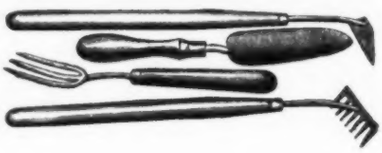

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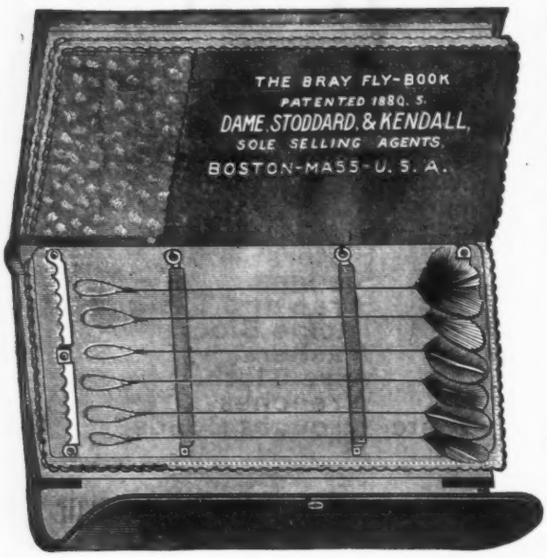

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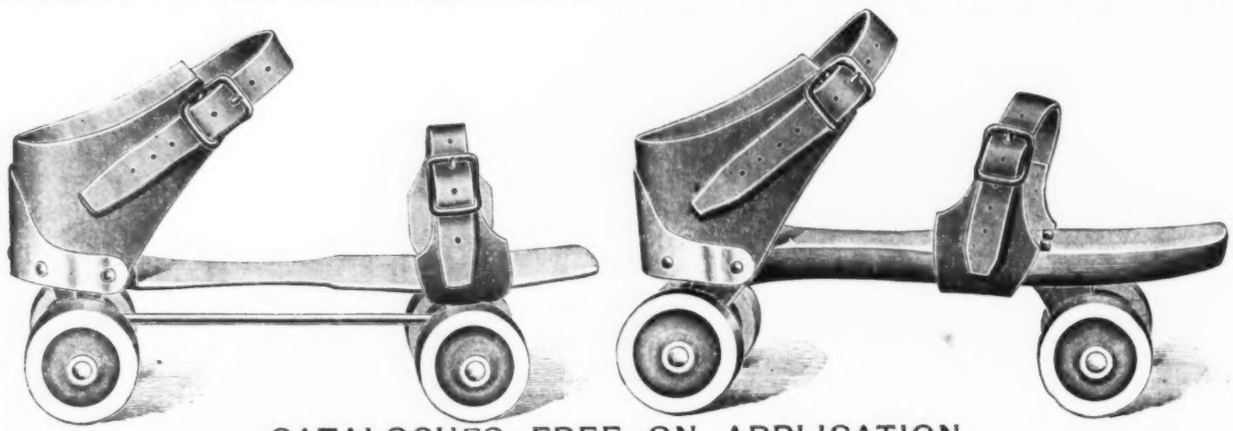

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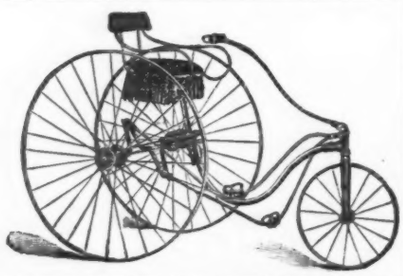

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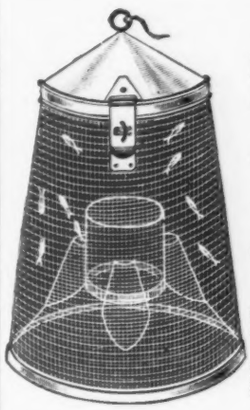

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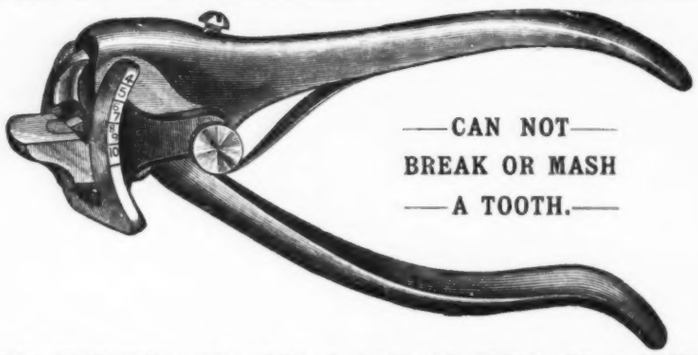

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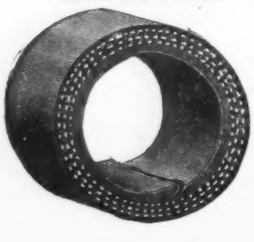

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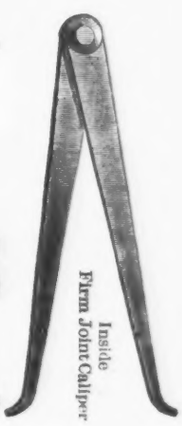

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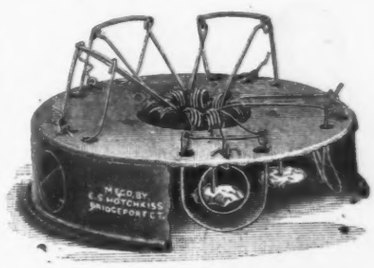

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MALLEABLE IRON

Waranted Not to Break with Legitimate Use.

Fits Nuts on any ordinary Carriage or Wagon.

NO SCREWS OR THUMB NUTS

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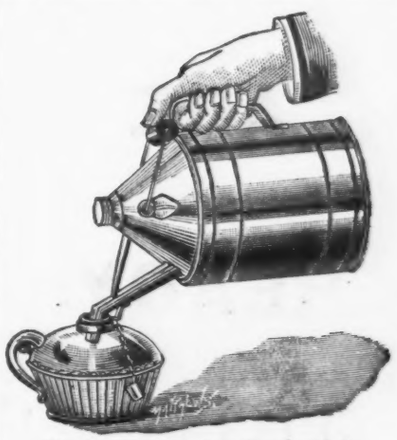

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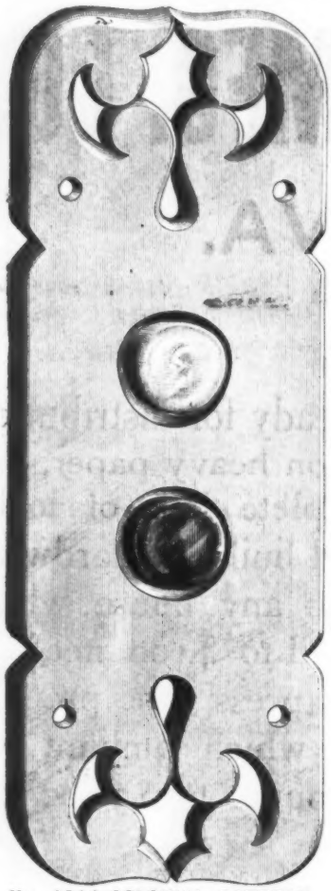

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2½ Inch.
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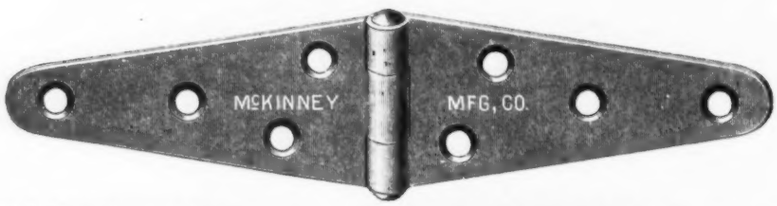

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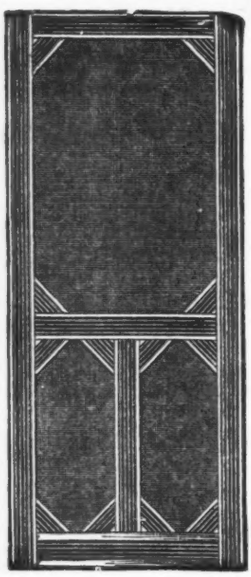

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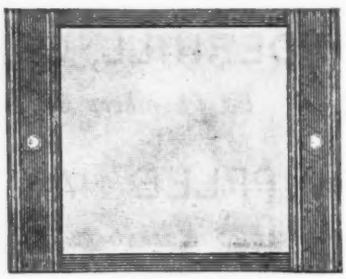

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Front.

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Back

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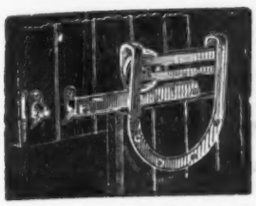

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It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

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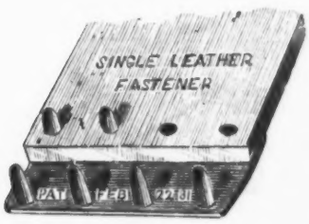
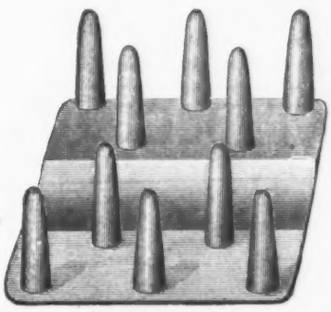


Fastens any width or ply of Belting.



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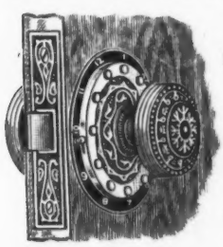

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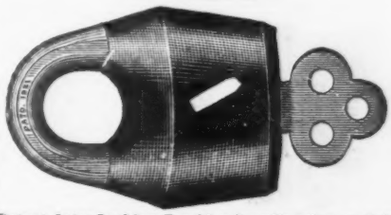

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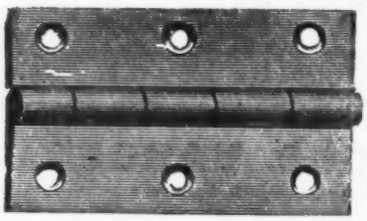

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A Pronounced Success

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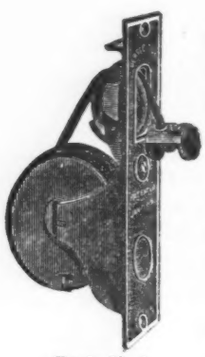
Perfection Sash Balance



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The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

Each balance is fully warranted for ten years.

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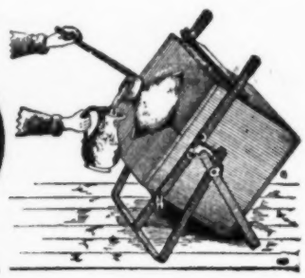
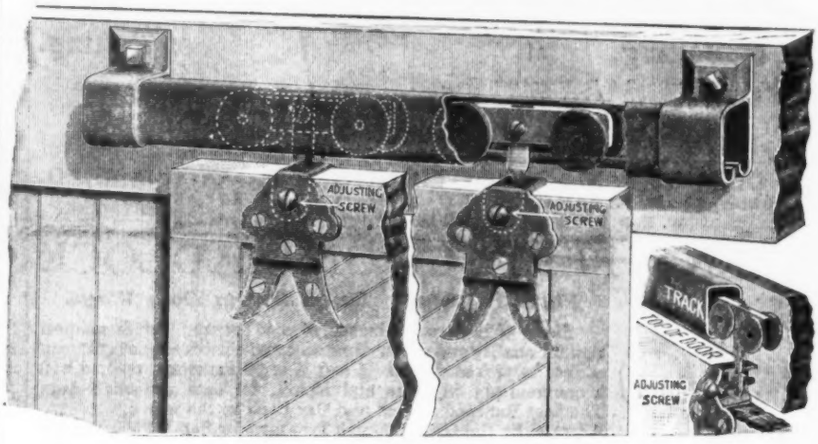


SHUT THAT DOOR. I CAN'T.



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It's warped. You should have hung it on a Coburn Hanger. The warping of a door does not affect the running of the door on the track. No snow or ice can get into the track to block the same. The axle bearings are self lubricating. I'ts the only covered adjustable track on earth. Write for prices.

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CLASS 3. CLASS 3. CLASS 4. | New Goods.
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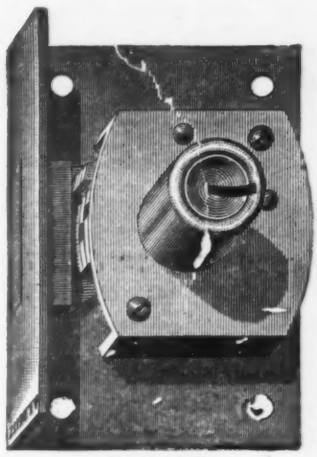

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Abolish the Ancient Mortise and Tenon and use the Duplex Joist Hanger.

GIVES DOUBLE THE STRENGTH,

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SAVES MONEY, TIME AND LABOR.

Only 7 sizes used to fit any sized Joists. Write for prices and information.

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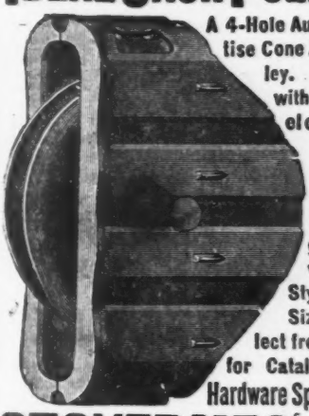

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STEEL STAMPS
For Every Purpose.
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BEST AND CHEAPEST.

Save **60 per cent** labor in hanging sashes.

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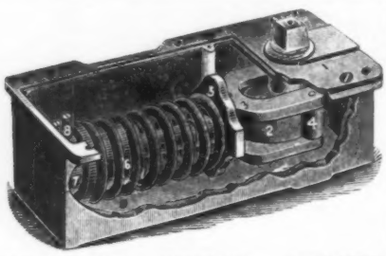

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Applied in floor under door. They close the door gently, without noise or violence and stop it at once at the centre. Doors cannot sag, springs do not break or set.

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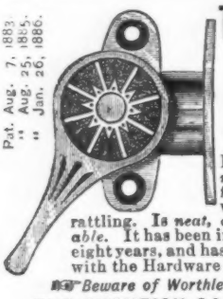

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Has by its *unequalled merits* gained the public favor. It is a safe ventilator and prevents rattling. Is *neat, cheap, simple and durable.* It has been in *extensive use* for over eight years, and has become a *staple article* with the Hardware trade.

Beware of Worthless Imitations.

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Takes the lead. Every feature a triumph. No dirt or ice can clog it. It is the most convenient, most durable and the handsomest. Made in all sizes, both loop eye and round eye; also swivel eye and open eye, and double for bit snap, &c. We are the parties who guarantee satisfaction or refund your money.

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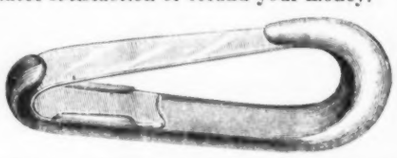

As used for attaching Bit to Bridle or Halter. Has no equal, and the lowest in price.

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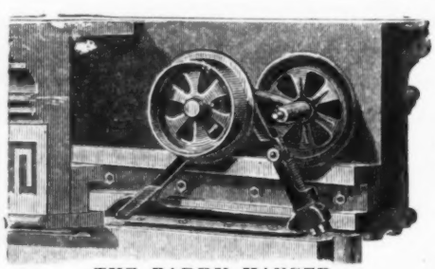

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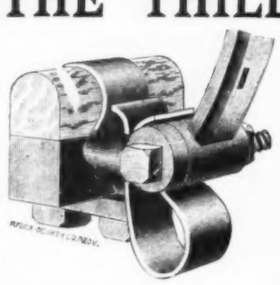

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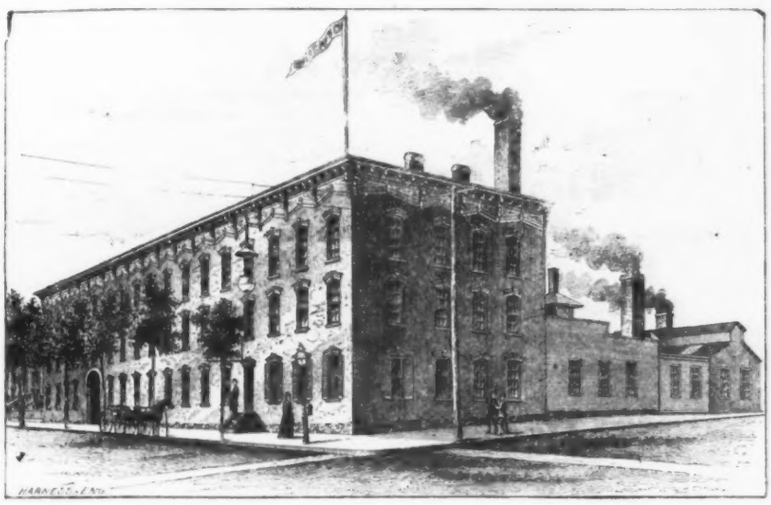

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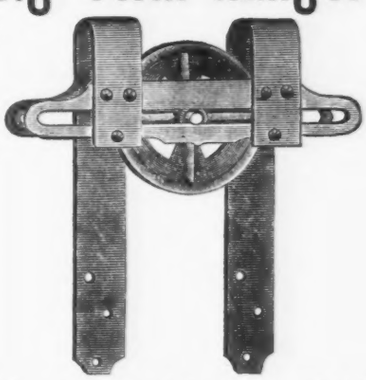

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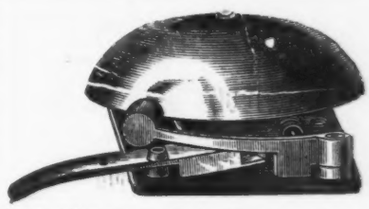

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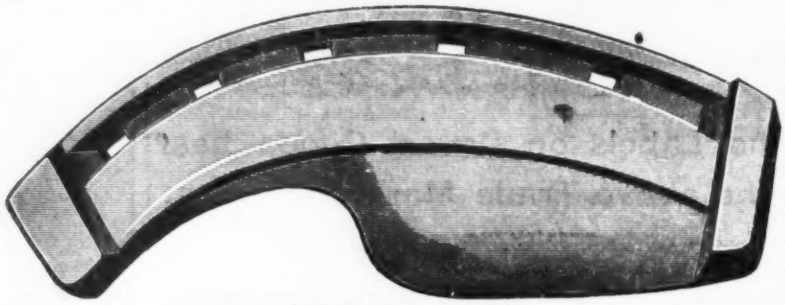

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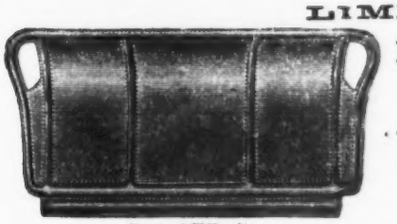

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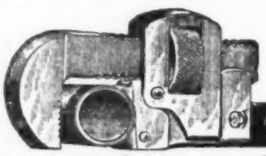

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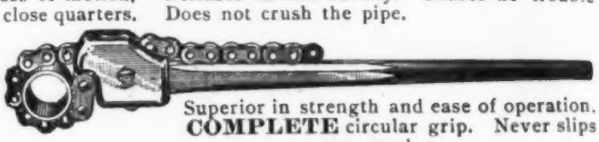

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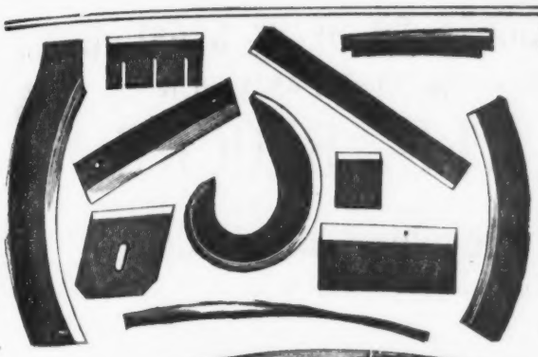

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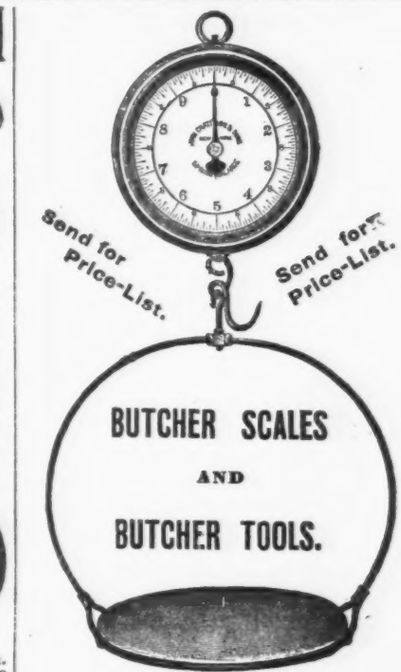

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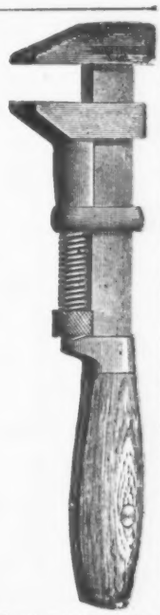

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It is Light (Weight One Pound.)

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The cross section is shaped similarly to an ogee, forming a rib, as it were, on the back, by which the metal is utilized to its greatest advantage at the point of severest strain.

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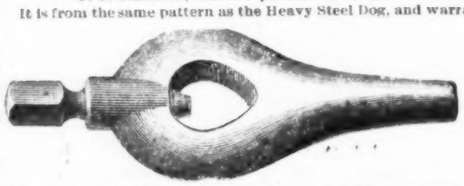
WITH STEEL SCREWS.

U. S. Standard, and the points hardened. To be driven from a stud in the face plate.

It is from the same pattern as the Heavy Steel Dog, and warranted, like that, not to break with any work.



No.	Inch.	Price.	No.	Inch.	Price.
1	¾	$0 60	11	1½	$1 45
2	⅞	70	12	3	1 60
3	1	70	13	3½	1 80
4	1⅛	80	14	4	2 10
5	1¼	80	15	4½	2 75
6	1⅜	95	16	5	3 25
7	1½	95	17	5½	4 00
8	1¾	1 10	18	6	5 00
9	2	1 20	19	7	6 00
10	2¼	1 35	0	8	7 00

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This pattern will stand much more than a bent tail, and some prefer them on account of their direct action on the work.

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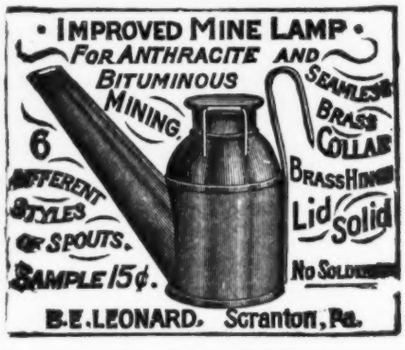

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THE PERFECTION OF MECHANICAL SKILL.

DOUBLE GEARED.

Style of High Wheel, 15, 17, 19 and 21 inch.

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"COLDWELL'S IMPROVED"

HORSE LAWN MOWER

We have retained all the desirable features of our Horse Mower as formerly made, with many valuable improvements.

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Side draft.
Height of cut perfectly adjusted by one motion.

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Throwing over the front lever will raise the knives so as to run over gravel walks or roads. Composition metal bushings.

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IT IS THE BEST.

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"NEW MODEL."—High Wheel.

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We are the oldest and most extensive manufacturers of LAWN MOWERS in America.

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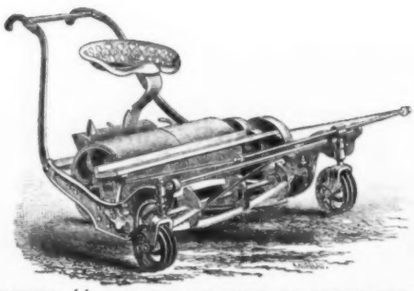

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"EXCELSIOR" ROLLER.

Every Lawn Mower we manufacture is FULLY WARRANTED.

IT WILL PAY YOU TO SEND TO US FOR DESCRIPTIVE CIRCULARS AND TRADE DISCOUNTS, BEFORE PLACING YOUR ORDERS FOR LAWN MOWERS FOR THE COMING SEASON.

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"The Lawn Razor."
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Send for Price-List and Discounts.

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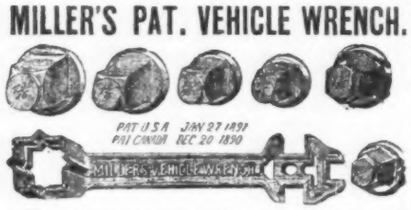

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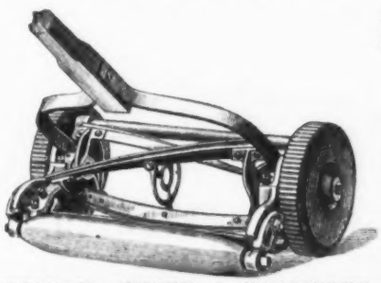

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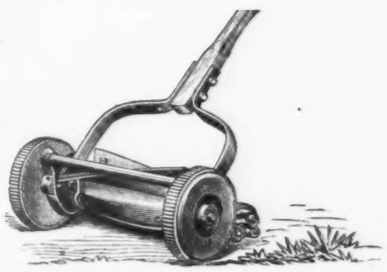

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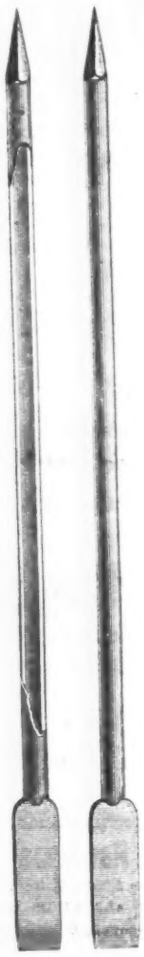

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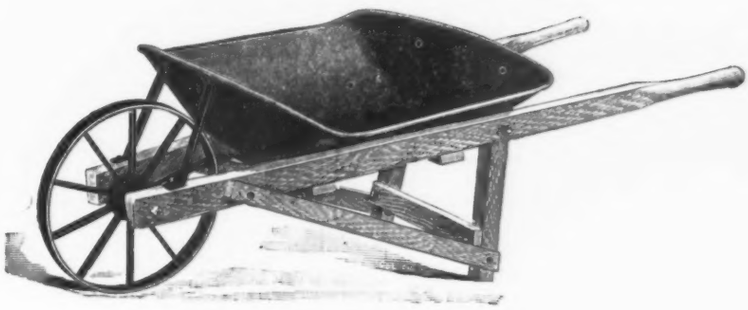

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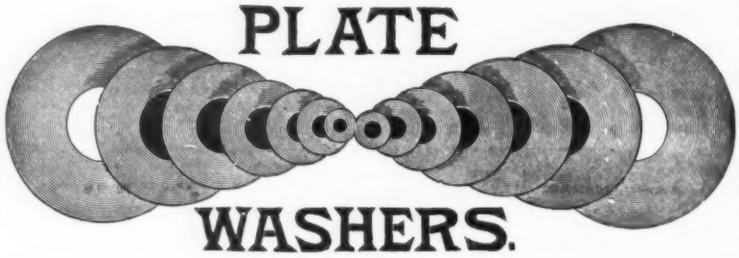

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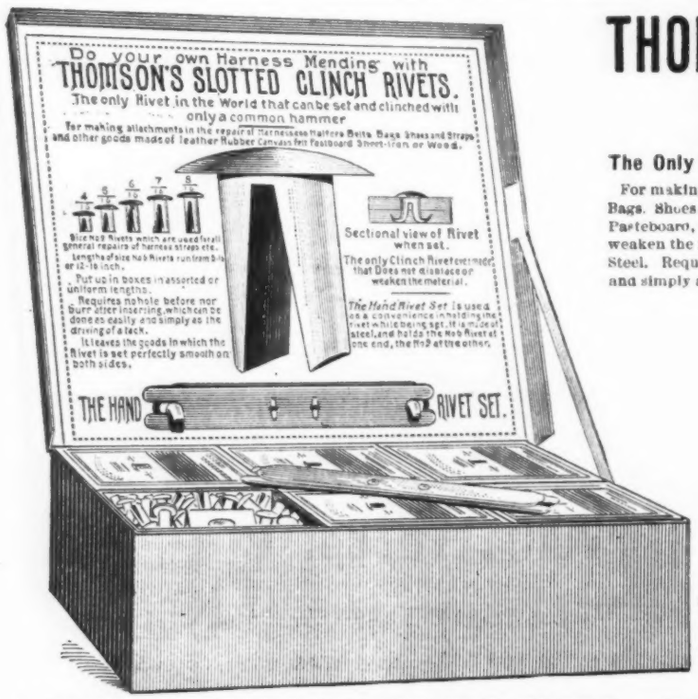

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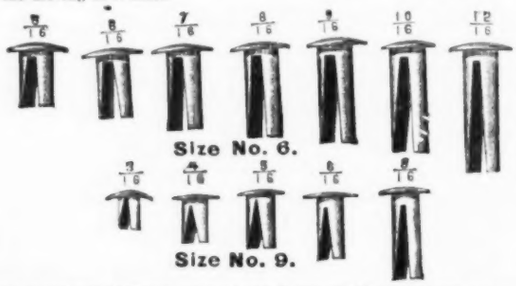

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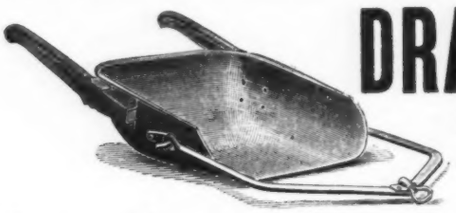

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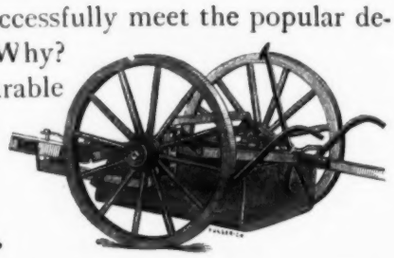

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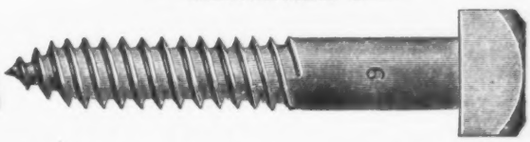

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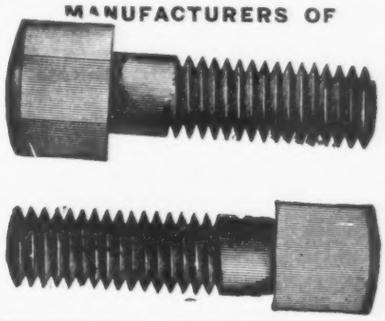

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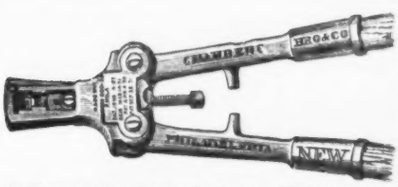

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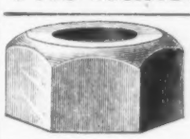

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Jackson & Woodin Mfg. Co., Berwick, Pa.
John on Company, Johnstown, Pa,
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Mahoning F'dry & Mch. Co., Danville, Pa.
New Castle Steel Casting Co., New Castle, Pa.
Nixon & Lentz Mfg. Co., Chattanooga, Tenn.
Norristown Steel Co., Norristown, Pa.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Novelty Iron Works, Allentown, P.
Palmers & De Mooy, Cleveland, O.
Pratt & Letchworth, Buffalo, N. Y.
St. Louis Steel Fdy. Co., St. Louis, Mo.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Southern Mall. Iron Co., Chattanooga, Tenn.
Springfield Fdry. Co., Springfield.
Springfield Steel Casting Co., Springfield, O.
Standard Fdy. & Mfg. Co., Cleveland, O
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Taylor & Boggs Fdry Co., Cleveland, O.
Totten & Hoag Iron & Steel Fdry Co., Pittsburgh, Pa.
Trenton Mal. Iron Co., Trenton, N. J.
Union Mfg. Co., 103 Chambers St., N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Cellar Drainers.
Friedenwald Bros., Baltimore, Md.
Kemp, Clarence M., Baltimore, Md.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Link-Belt Engineering Co., Phila. a.
McKay, Jas. & Co., Pittsburgh, Pa.

Cherry Stoners.
Enterprise Mfg. Co., Philadelphia, Pa.

Chimneys.
Phila. Engineering Works., Phila., Pa.

Chisels, *Manufacturers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks Conn.
Nat. Chuck Mfg. Co., Mt. Vernon, N. Y.
Oneida Mfg. Chuck Co., Oneida, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
Whiton, D. E. Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.
Le Count, C. W., Jr., So. Norwalk, Conn.

Clipping Machines.
McCoy, Jos. F. & Co., 26 Warren St.

Clock Springs, *Manuf'rs of*
Haley Mfg. Co., Concord, N. H.

Coal.
Wister, Francis, Philadelphia

Coffee and Spice Mills.
Chillicothe Mfg. Co., Chillicothe, O
Lane Bros., Poughkeepsie, N. Y.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited) 4 and 6 Warren, N. Y.

Conveyors.
Link Belt Engineering Co., Phila., Pa.

Copper.
Ames Sword Co., Chicopee, Mass.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Edes, Edw. L., Plymouth, Mass.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.
Wister, Francis, Philadelphia, Pa.

Cordage.
Elizabethport Cordage Co., 46 South,
Samson Cordage Works, Boston, Mass.

Corn Huskers.
Perkins, H. H. Mfg. Co. Kewanee, Ill.

Corn Shellers.
Goulds Mfg. Co., Seneca Falls, N. Y.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Miller, Jas. A. & Bro. Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.

Counting Machines.
Osborn, G. Edw. & Co., New Haven, Ct.

Coupling.
Almond, T. R., Brooklyn, N. Y.

Coverings, Boiler and Pipe.
Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Byram & Co., Detroit, Mich.
Colhau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Kohler, F. E. & Co., Canton, O.
Noyes, B. B. & Co., Greenfield, Mass.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co., Chicago, Ill.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N.Y.
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, I., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia, Pa.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 136 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Elevators.
Smith Hill Co., Quincy, Ill.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Chicago, Ill.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Southern Emery Wheel Co., Talladoosa, Ga.
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
De Forest, H. L., 146 Liberty St., N. Y.
Gram Curtis, Pittsburgh, Pa.
Herrick, J. A., 15 Whitehall St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., incorporated Pittsburgh, Pa.
Swindell, W. & Bros., Pittsburgh, Pa
Tallman, F. G., Pittsburgh, Pa.
Zeitweger, J., Chicago Ill.

(See Alphabetical Index, Page 112.)

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N J.
Buckeye Engine Co., Salem, Ohio
Chandler & Taylor Co., Indianapolis.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works. Harrisburg, Pa.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone. W. C. & Son, Brooklyn

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
Goubert Mfg. Co. 32 Cortlandt St., N. Y
Kelley, B. F. & Son, 91 Liberty, N. Y.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.

Fencing, Iron and Wire.
Barnum, E. T. Detroit, Mich.
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co , Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps. *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. S., 135 Duane St., N. Y.
Chelsea File works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick. *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fishing Tackle.
Dame, Stoddard & Kendall Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
Wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Foos Mfg. Co., Springfield, Ohio.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collau, Victor, Detroit, Mich.
S. Obermayer, Founary Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Machines.
Kemo, Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. . & Co., Gloucester, Mass.
Leggett & Bro., 3 1 Pearl St., N. Y.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Cent al City Bolt Co., Syracuse, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Coburn Trolley Track Mfg Co , Holyoke, Mass
Lane Bros., Poughkeepsie, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Graham, John H. & Co., 115 Chambers, McCoy, Jos. F. Co., 28 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surpi ss, Dunn & Alder, 97 Chambers St., N. Y.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Cleveland Fdy. Co., Cleveland, O.
Ehrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co , Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Hendey Mach. Co., New Haven, Conn
North Bros Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.
Missouri Mal. Iron Co., St. Louis, Mo.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hog Rings and Ringers.
Hill, Hugh W. & Co., Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Brodson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E.D., N.Y
Stuart & Peterson Co., Phila., Pa.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N.Y.
National Horse Nail Co., Vergennes, Vt,

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St. N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W , Philadelphia, Pa.
Shepard Hdw. Co. Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Muhr, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. K. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. K. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 416 West St., N. Y.
Naylor & Co. 45 Wall St , N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm st N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Naylor & Co., 45 Wall St., N. Y.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Joist Hangers.
Duplex Hanger Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Graham, Emlen & Passmore, Phila, Pa
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N. Y.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Gibbs Mfg. Co., Canton, O.

Lawn Sprinklers.
Ette & Henger Mfg Co , St. Louis, Mo.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport. Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath l. Mass.

Locks & Knobs, *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Canton Combina ion Lock Co., Canton, Ohio.
Clallen Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co , Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Luukenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H , Lockport N. H.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E. Son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Mackinnon, J. A. Mch. Co., 23 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co , Waterbury Conn.
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Bowman, A. B., St. Louis, Mo.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Branford, Conn.
Dingee, J. H., Philadelphia, Pa.
Land Dept. F. & C., Chicago.
Norfolk & Western R. R.
N. Y., L. E. & W. R. R.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. B., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 557 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Naylor & Co., 45 Wall, N. Y.
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass

Oil and Grease Cups.
Luukenheimer Brass Mfg. Co., Cincinnati, Ohio.

(See Alphabetical Index, Page 112.)

Selbert Cylinder Oil Cup Co., Boston Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Philadelphia, Pa.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J.
Leggett & Bro., 301 Pearl St., N. Y.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Peanut Roasters and Warmers.
Massaco, R. J. 80 Vesey St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 23 Dey, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila., Pa.
Donaldson Iron Co., Emaus, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Gibbs Mfg. Co., Canton, O.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
"Silver Finish."
Wright & Colton Wire Cloth Co, Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Beiden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Buffalo Steam Pump Co., Buffalo, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. B. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Cleveland Hdw. Co., Cleveland, Ohio.
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 74 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Grand Rapids Refrigerator Co., Grand Rapids, Mich.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disoway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning Fdry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron & Steel Roofing Co., Cleveland, Ohio.
Johns H. W. Mfg Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Univer al Sad Iron Co., Milwaukee, Wis

Sand Paper.
Bayler, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport,
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Duplex Hanger Co., Cleveland, O
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co., Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.
Riehle Bros. Testing Mch. Co., Philadelphia.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hdw. Mfg. Co., New Britain, Conn
Reynolus & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia. Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—*Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Belleville Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros. Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24 29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Shims.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co, Worcester, Mass.

Skates, Roller.
Heal y, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. B. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Cary Alanson, 240-242 W. 29th St., N. Y.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 104 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Hardsley, J., 149 & 151 Baxter St., N.Y.
Chicago Spring Butt Co., Chicago, Ill.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, F. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 108 Chambers, N. Y.
Van Wagoner & Williams Co., 92 Beekman, N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co., Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co. Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Herrman & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., Ltd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw. & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill.
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

(See Alphabetical Index, Page 112.)

Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.

Tack Hammers.
Richar son, J. C. & Co., Ridgway, Pa.

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Dinsmore & Henderson, 165 Green wich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros. Testing Mch. Co., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Fire Cement.
Am. Trading Co., 182 Front, st., N. Y.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
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Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
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Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasoline.
Dangler Stove & Mfg. Co. Cleveland, O.
Standard Lighting Co., Cleveland, O

Transom Lifters.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fa. Mfg. Co, Elyria, O.

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Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tube Scrapers.
Johns, H. W. Mfg. Co., 87 Maiden Lane

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg, Pa
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

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Prentiss Vise Co., 23 Dey, N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
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Covert, E. Mfg. Co., Farmer Village, N.Y.

Washers.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Water Heaters.
Kemp, Clarence M., Baltimore, Md.

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Bradley & Co., Syracuse, N. Y.

Water and Steam.
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Oil Well Supply Co, Pittsburgh, Pa.

Wheelbarrows
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Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

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Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
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Mill r & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
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Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

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Darby, Edward & Sons, Phila.
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Phillips, E. & Sons, South Hanover Mass
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Plymouth Mills, Plymouth, Mass.
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Whitney, A. R. & Co., 17 B'way, N. Y.
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Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Siuney, O
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

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Bemis & Call Hardware & Tool Co, Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn
Capitol Mfg. Co Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
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Rhode Island Tool Co., Providence, R.I.
Trimont Mfg. Co., Roxbury, Mass.
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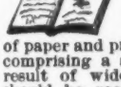

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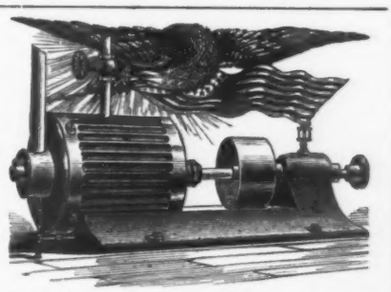

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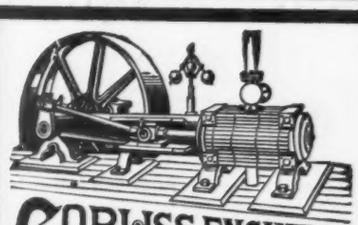

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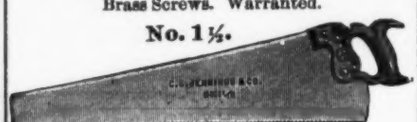

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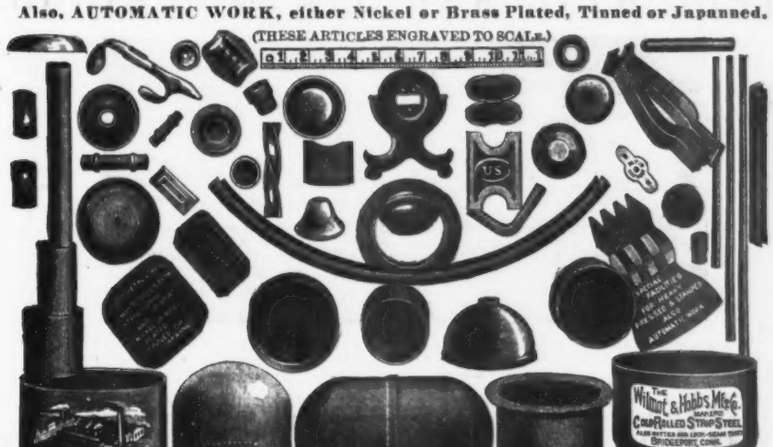

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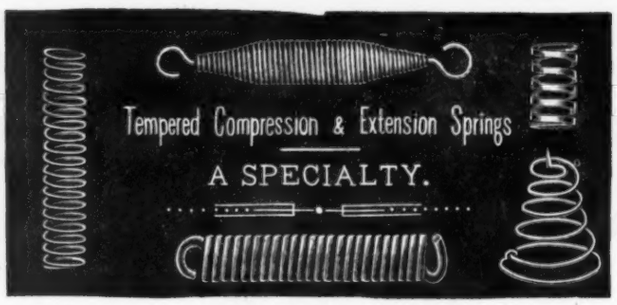

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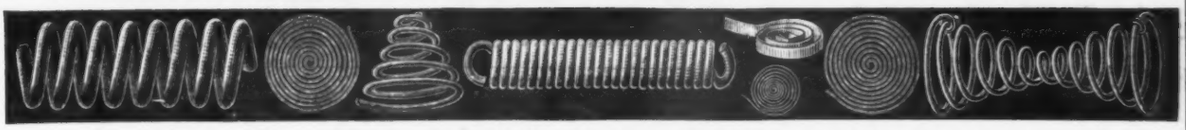

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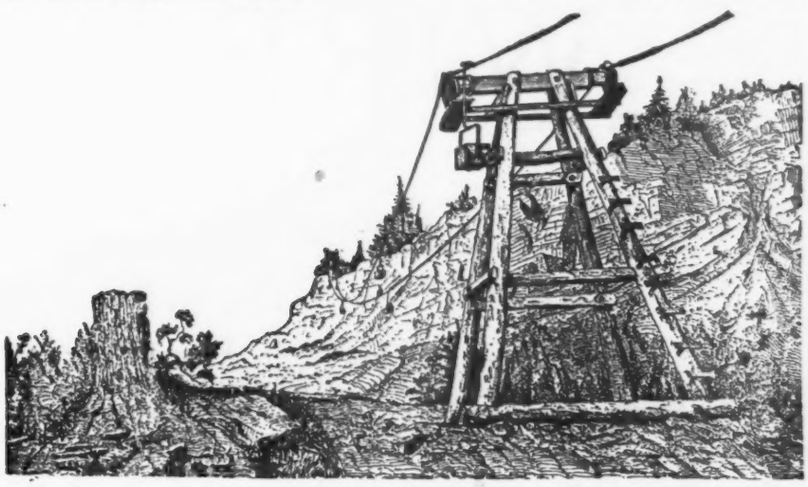

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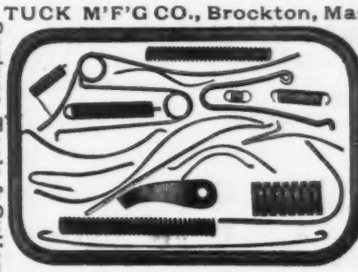

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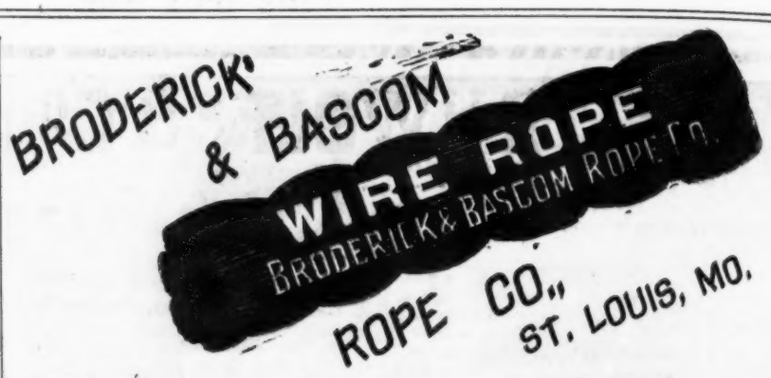

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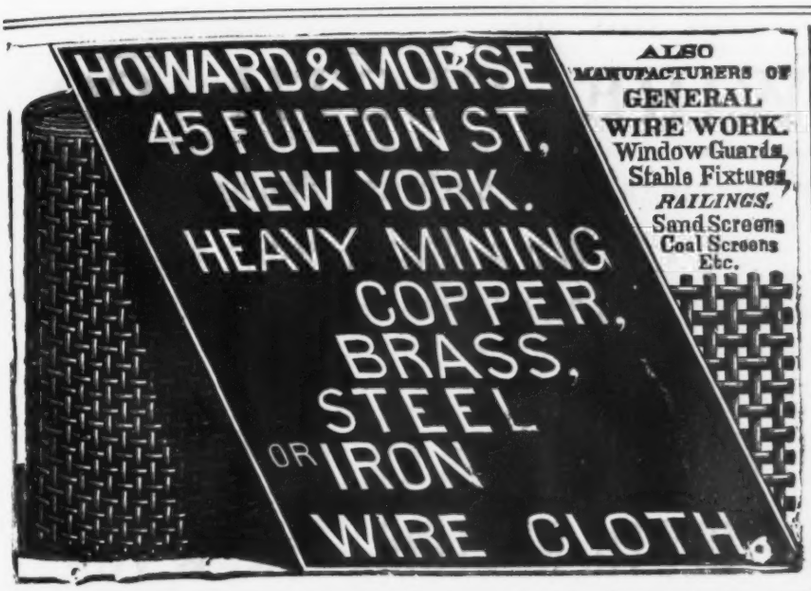

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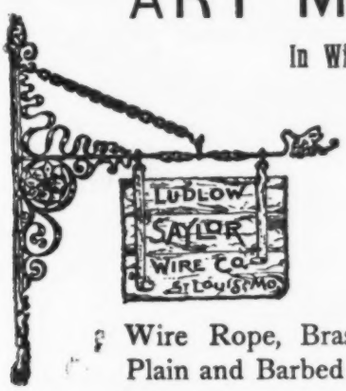

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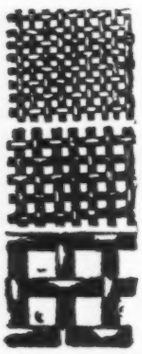

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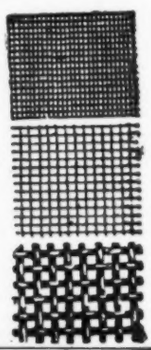

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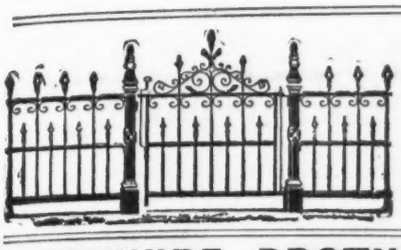

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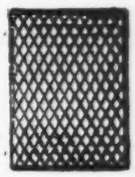

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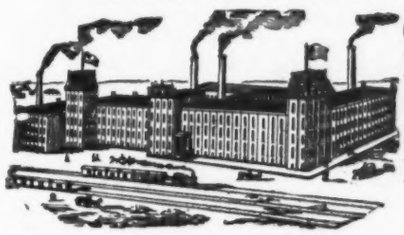

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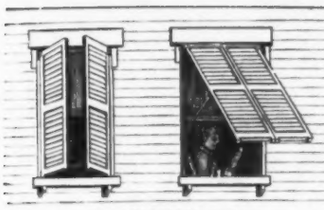

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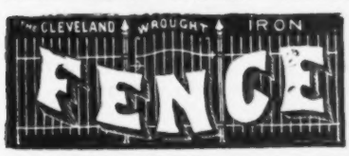

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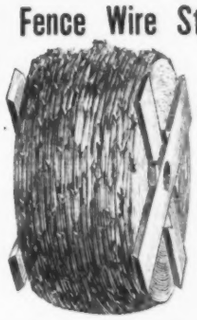

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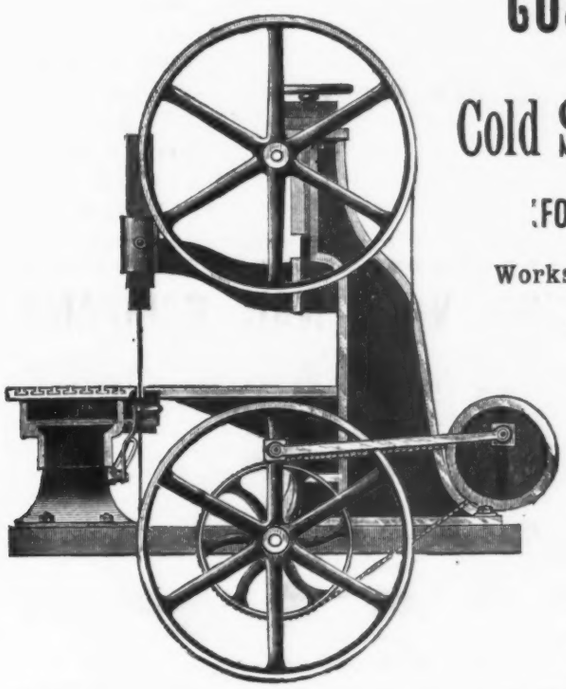

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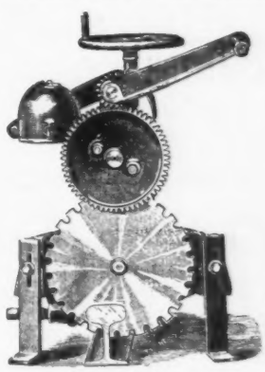

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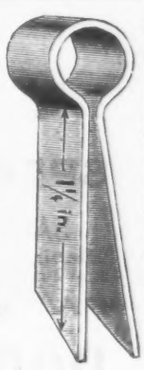

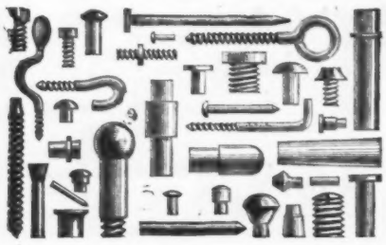

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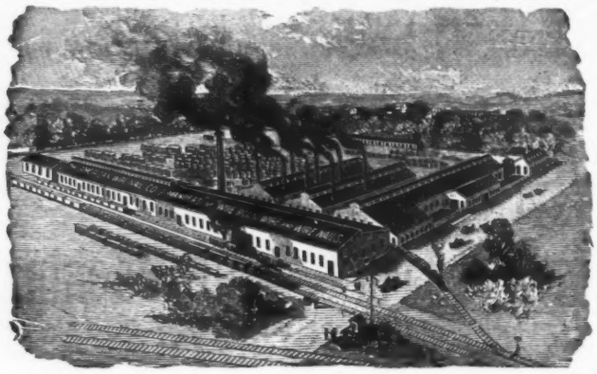

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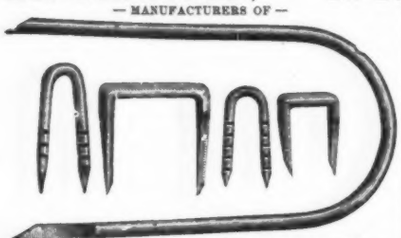

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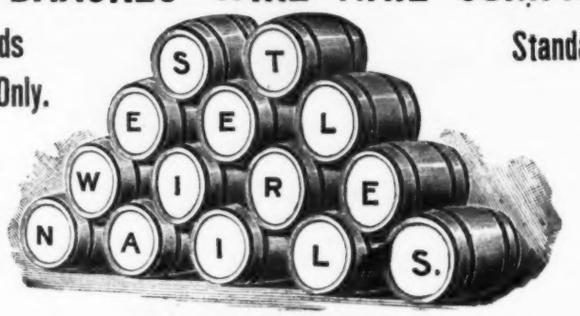

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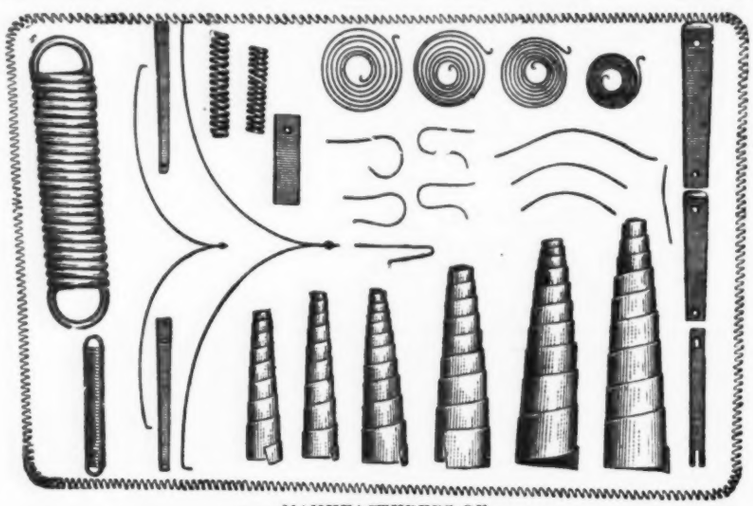

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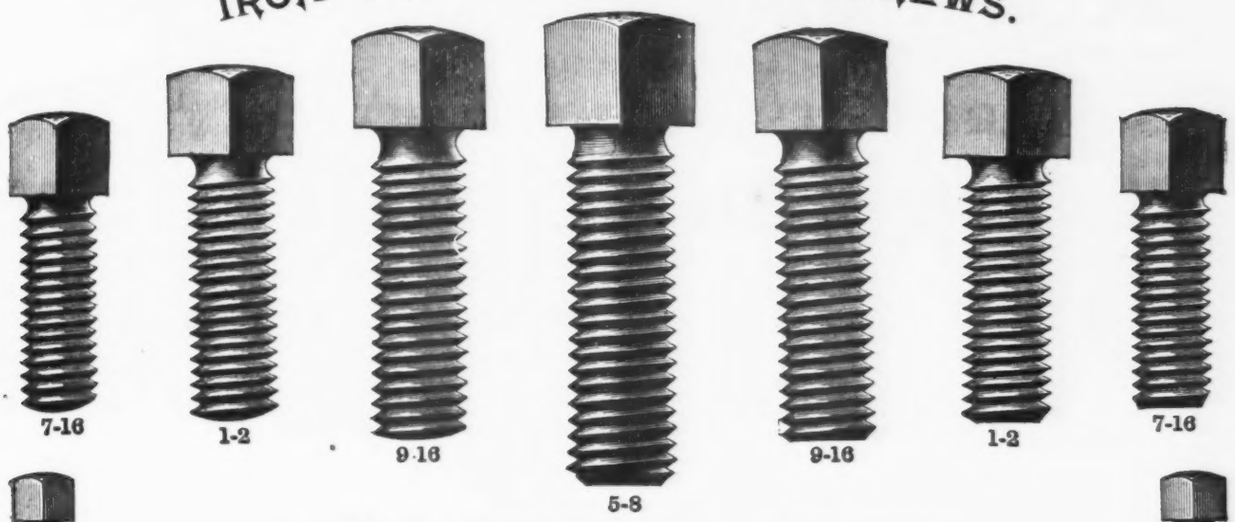

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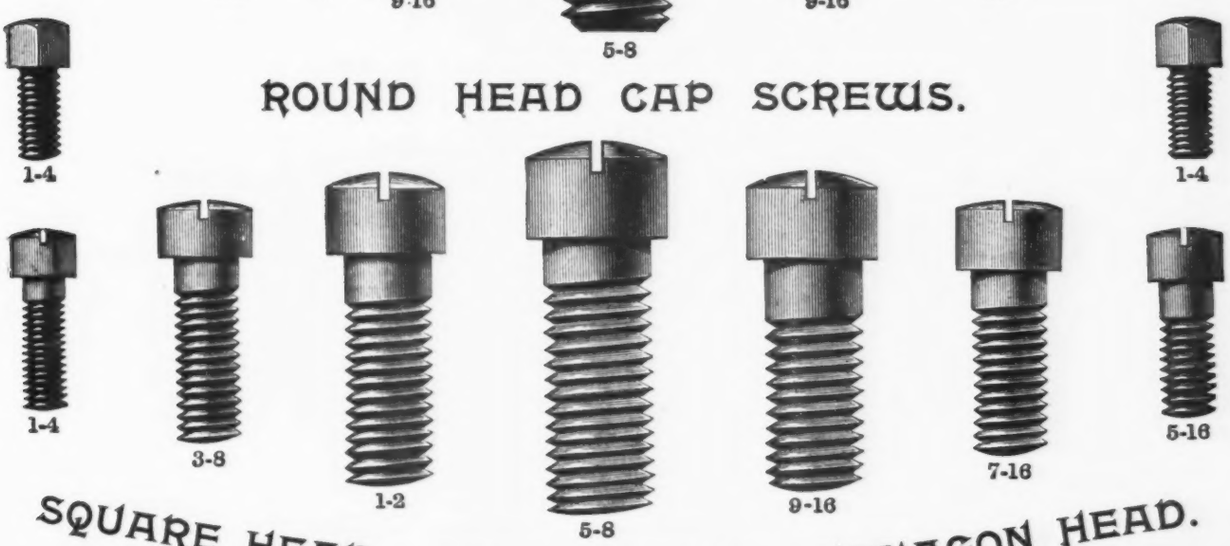

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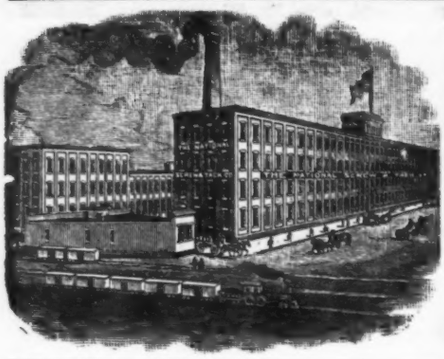

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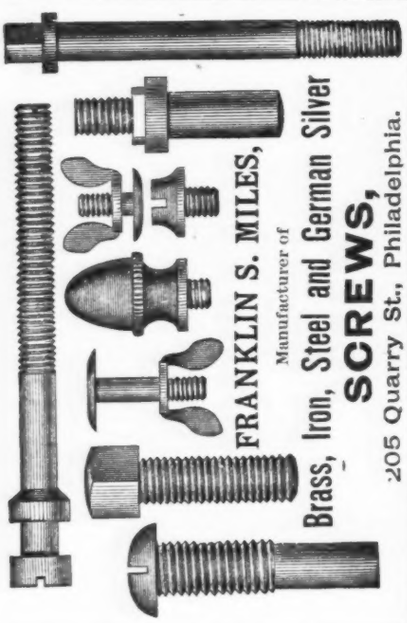

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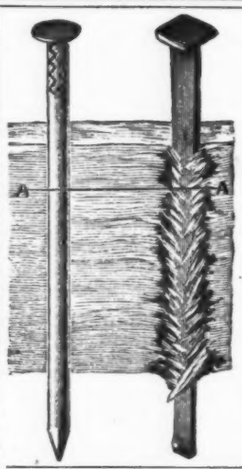

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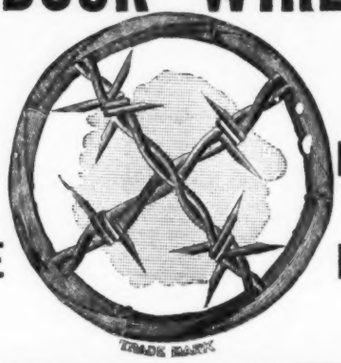

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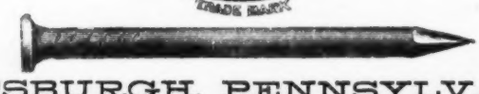

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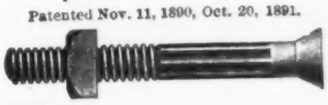
ITS ADVANTAGES ARE:

Stronger than a cut screw.
Forged nick.
Requires the use of only one bit.
Inserted easier.
Increased holding power.
Centralized point.
Is cold forged, and entire surface has a metallic skin.

Samples Sent on Application.

Patented Nov. 11, 1890, Oct. 20, 1891.



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Patented May 10, 1887; July 19, 1887; July 10, 1888. Other patents pending.

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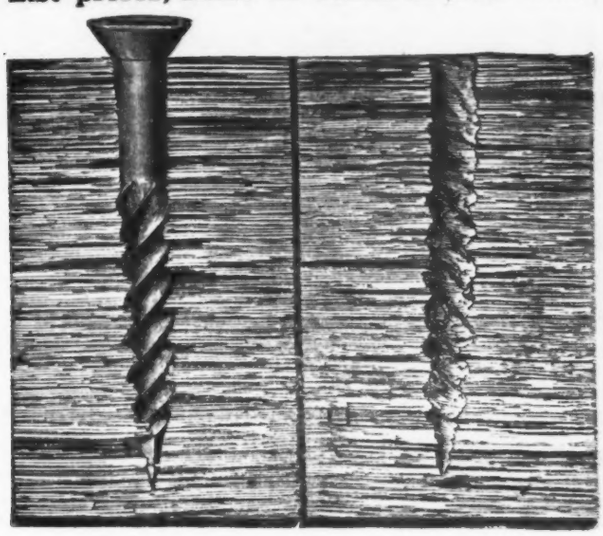
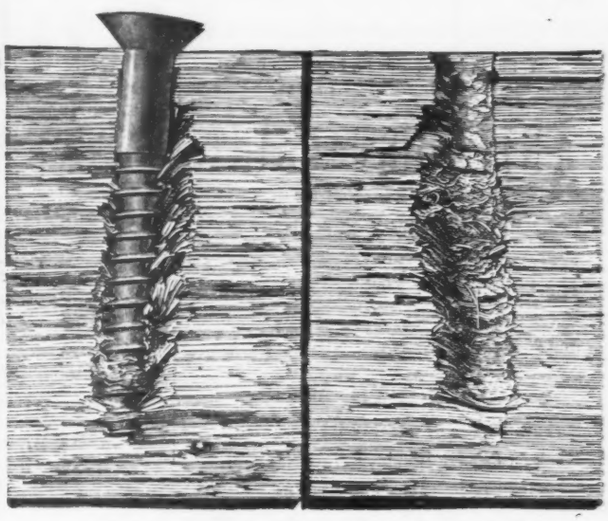


THE "ROGERS DRIVE SCREW,"

Driven with a hammer its entire length.



A COMMON CUT THREAD SCREW,

As ordinarily inserted, *i. e.*, driven two-thirds of its length with a hammer and the balance with a screw-driver. Fibres of the wood are necessarily broken, and holding power of screw much impaired.

Should be driven with a hammer its entire length.

1. Turns like a screw when driven with a hammer.
2. Holds stronger than a common screw as ordinarily inserted.
3. Does not break the fibres of the wood.
4. Cheaper than a common screw.
5. Is cold forged and has metallic skin over entire surface.

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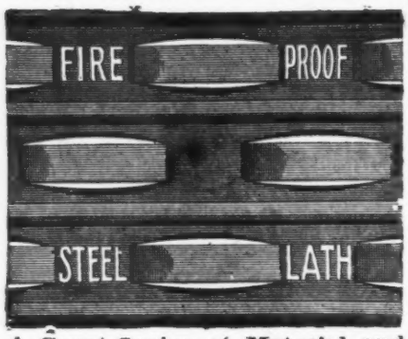

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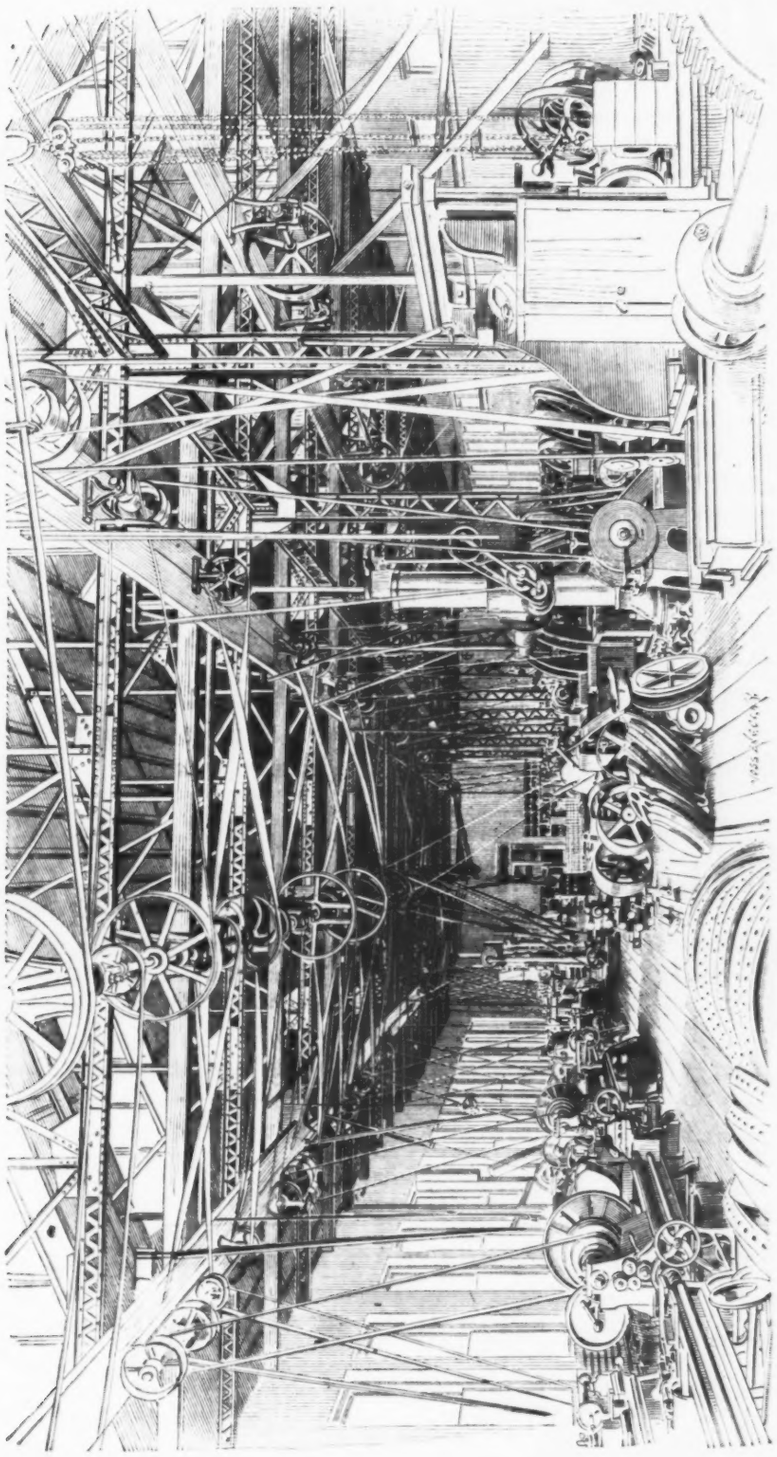

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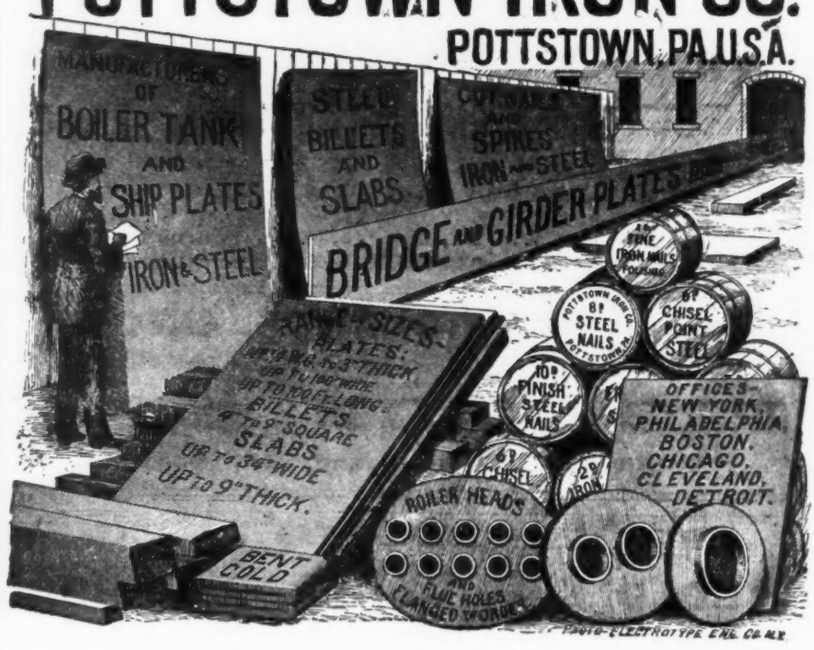

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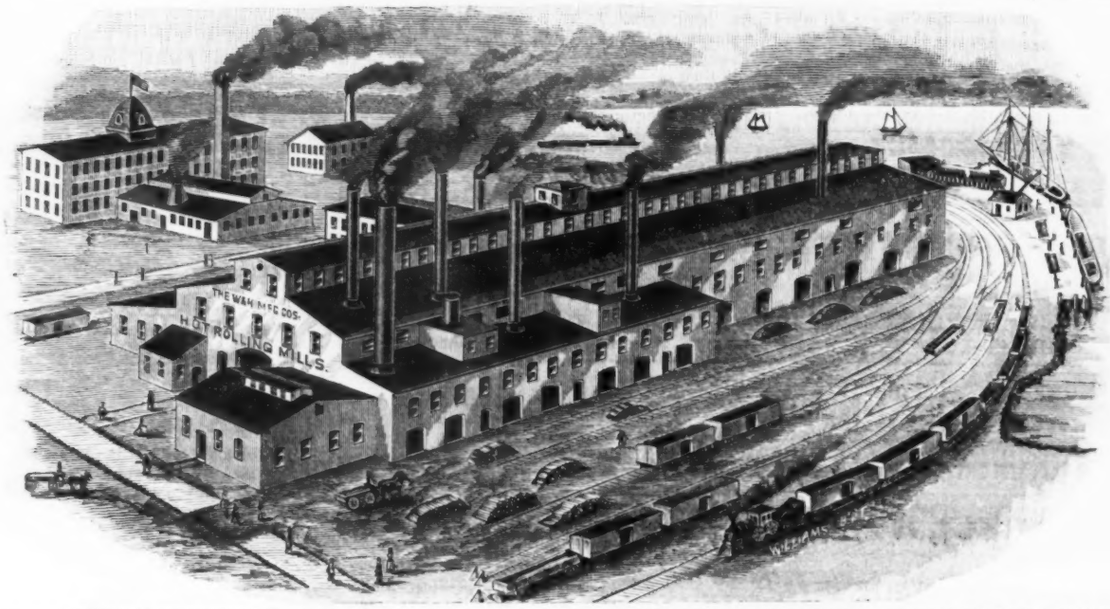

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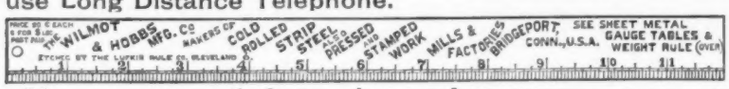

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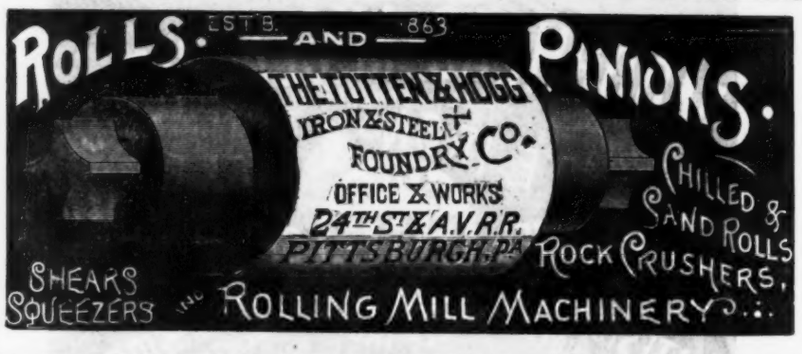

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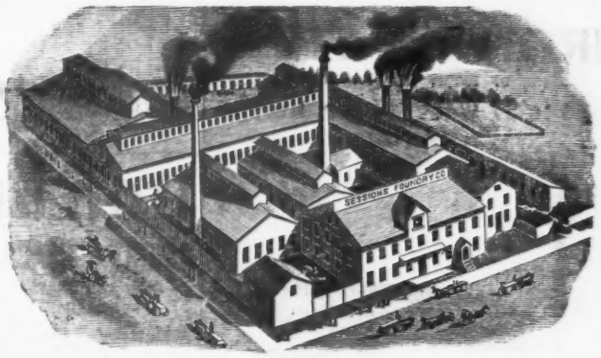

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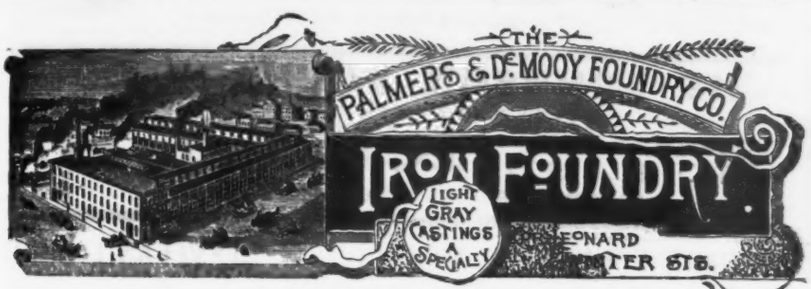

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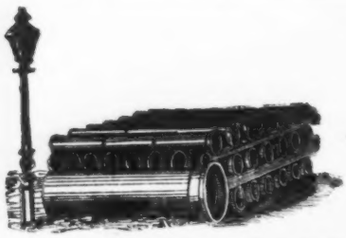

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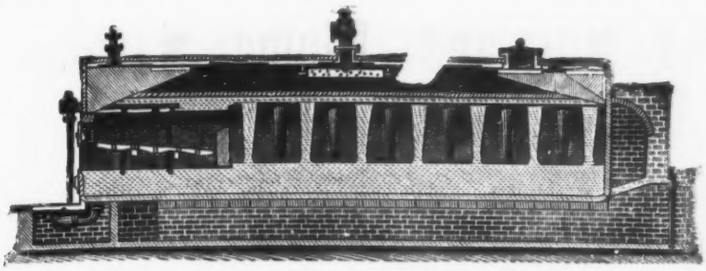

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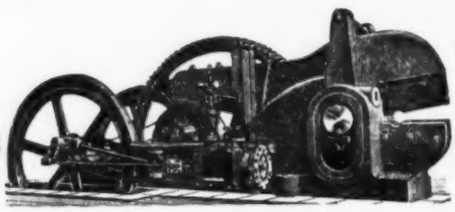

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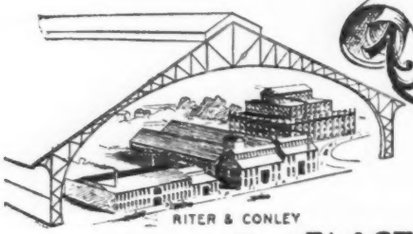
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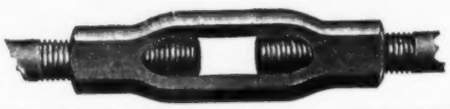

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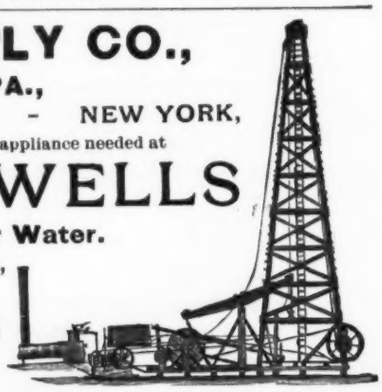

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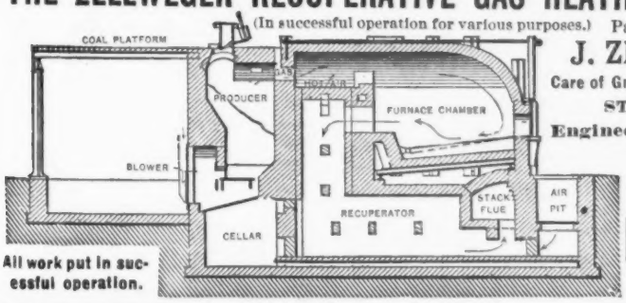

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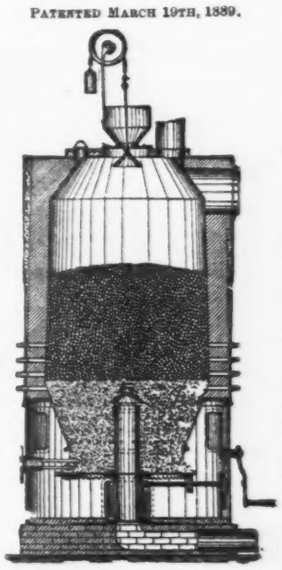

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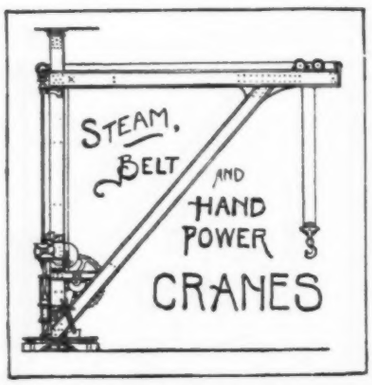

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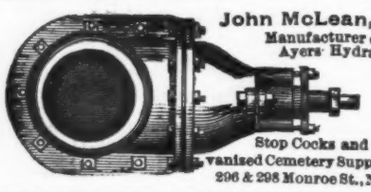

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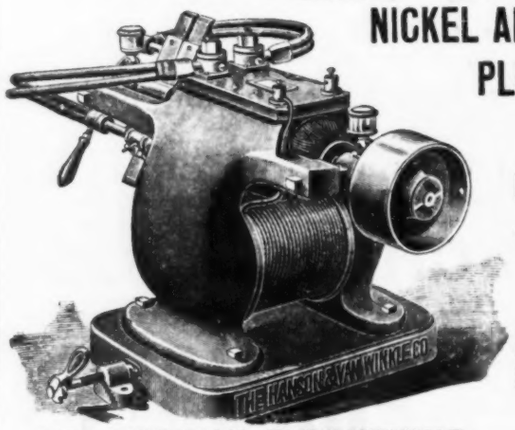

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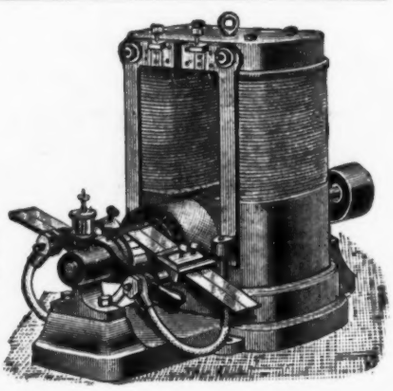

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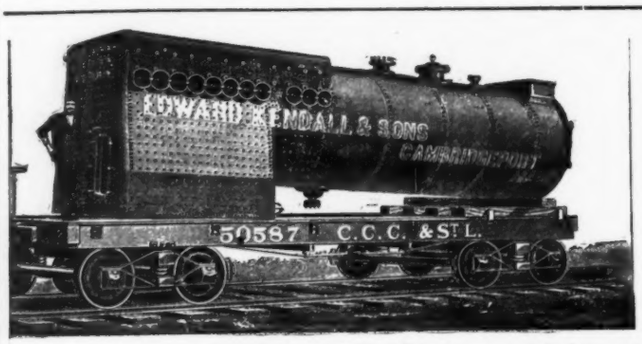

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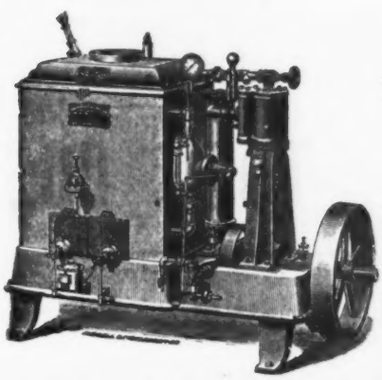

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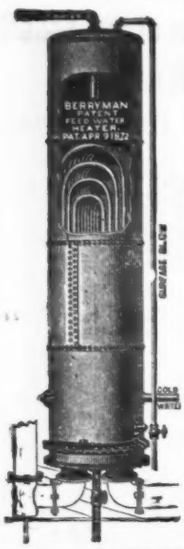

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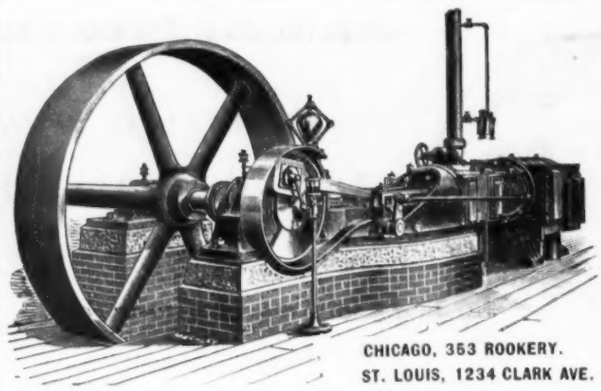

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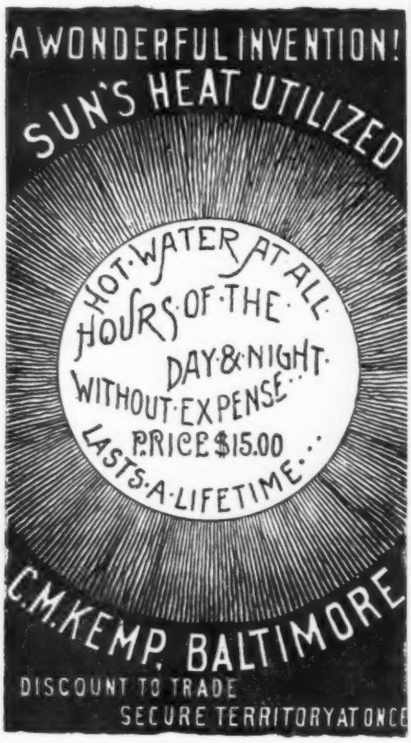

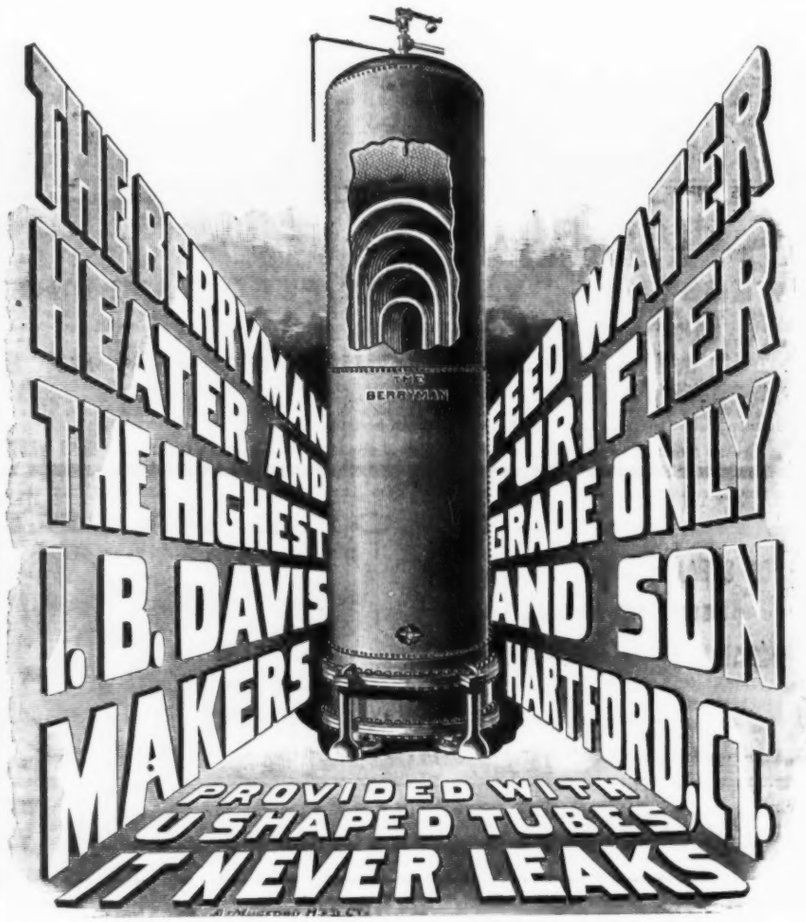

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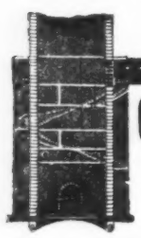

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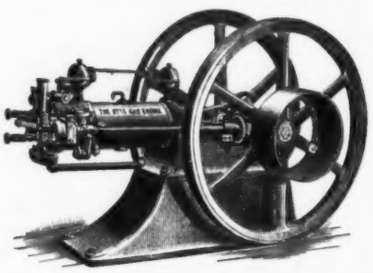

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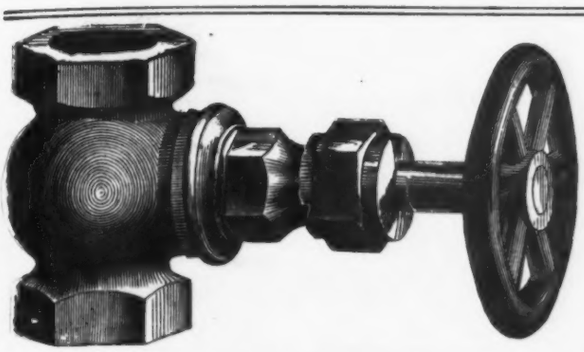

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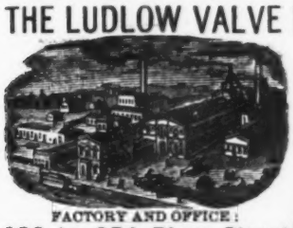

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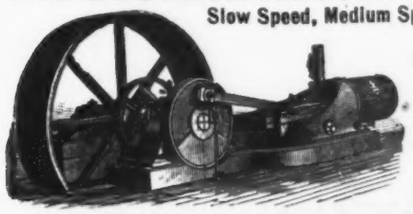

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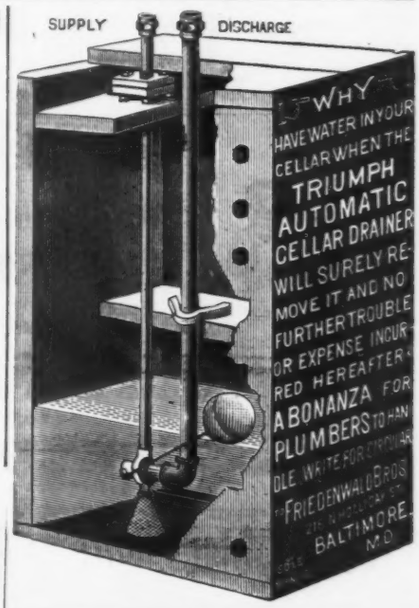

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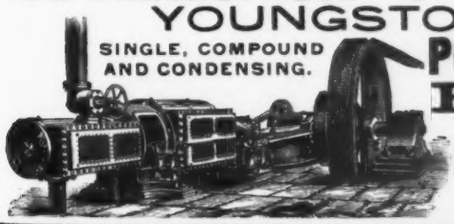

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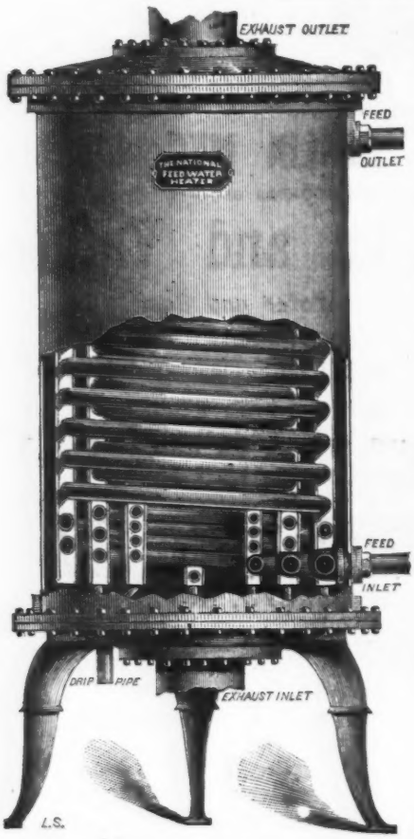

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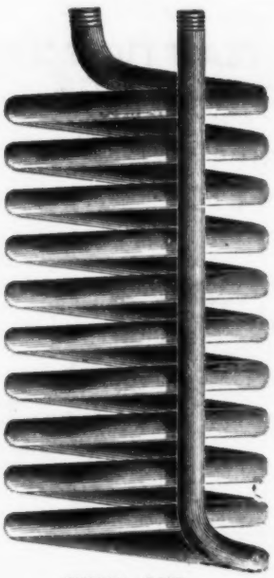

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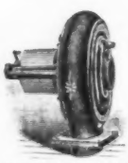

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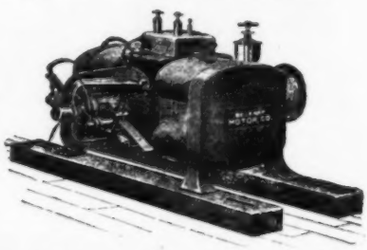

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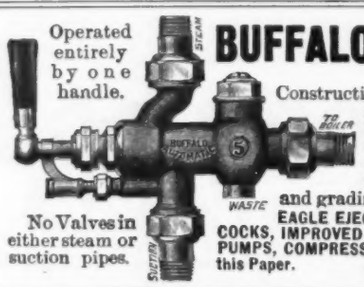

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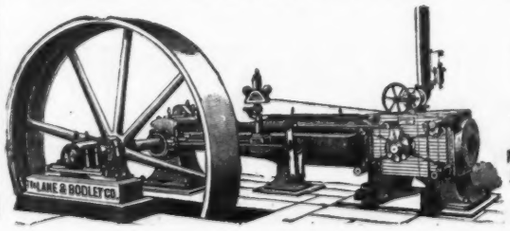

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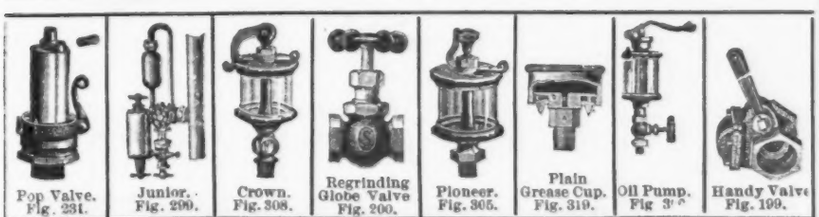

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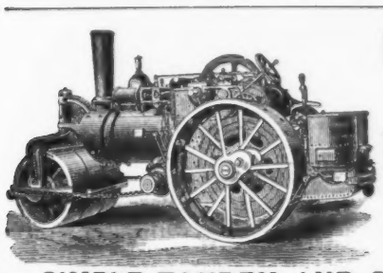

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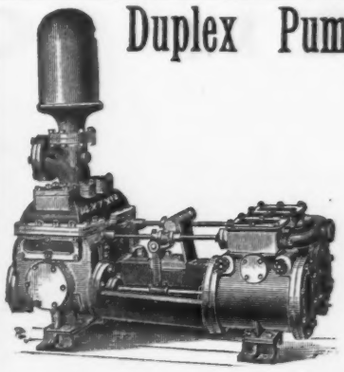

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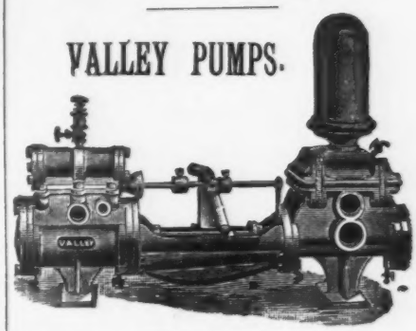

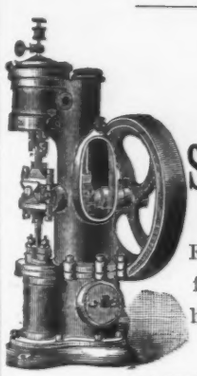

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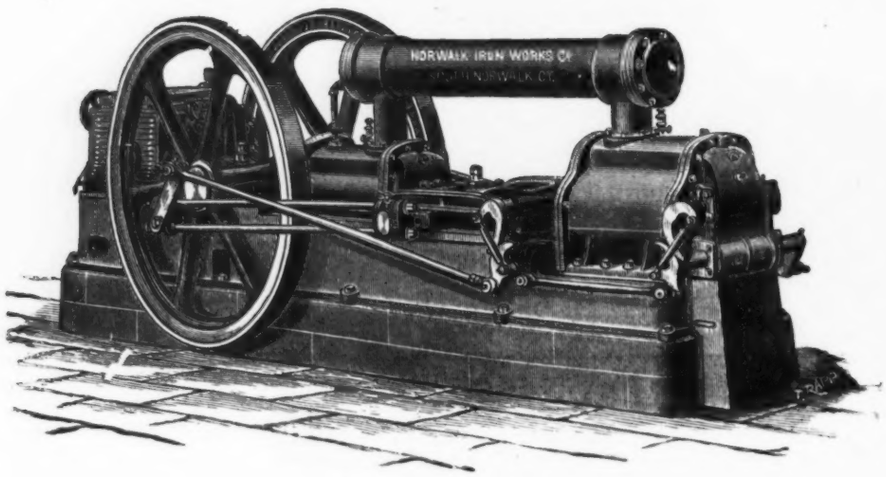

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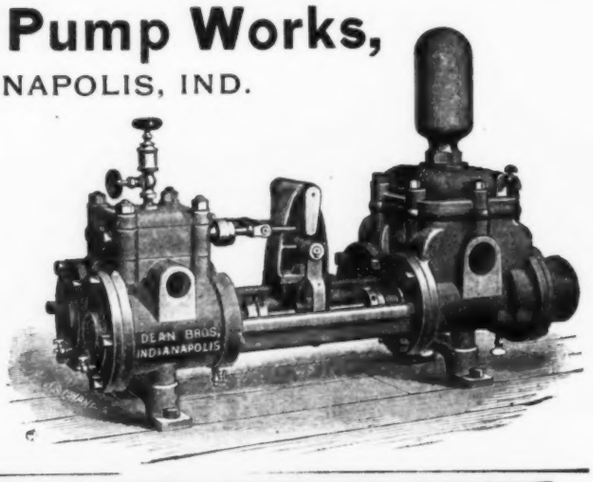

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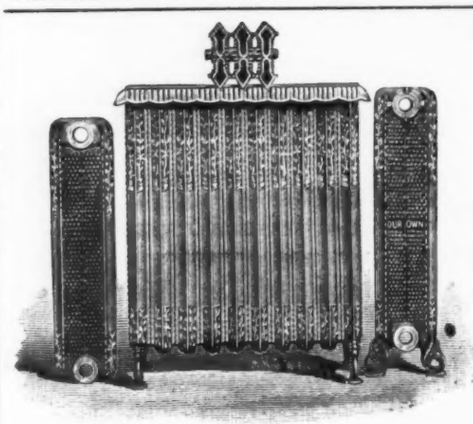

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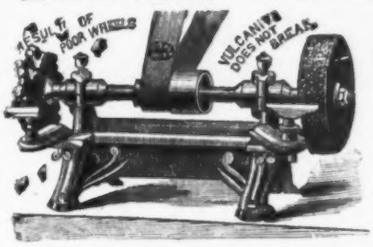

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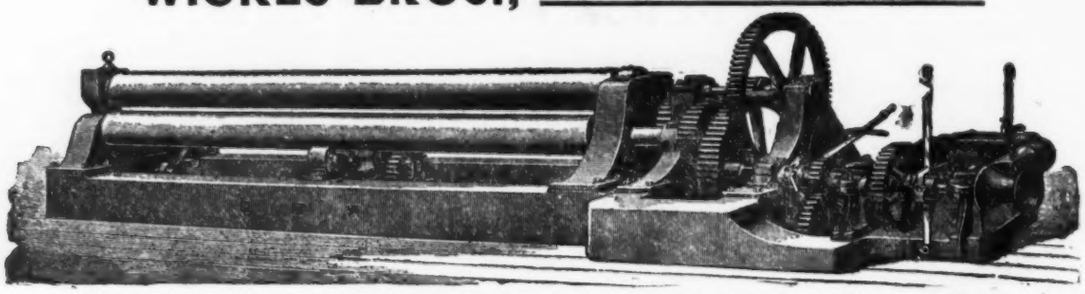

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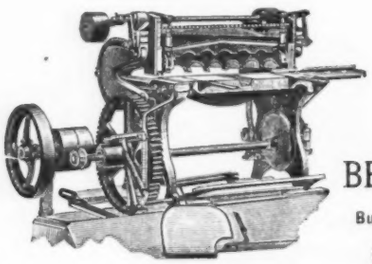

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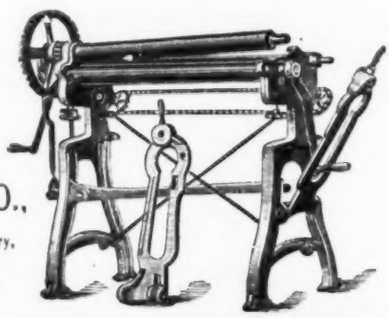

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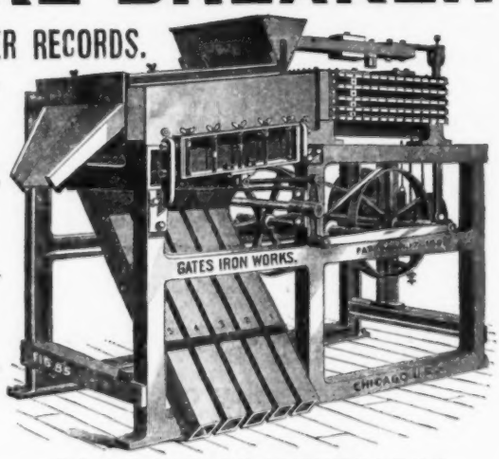

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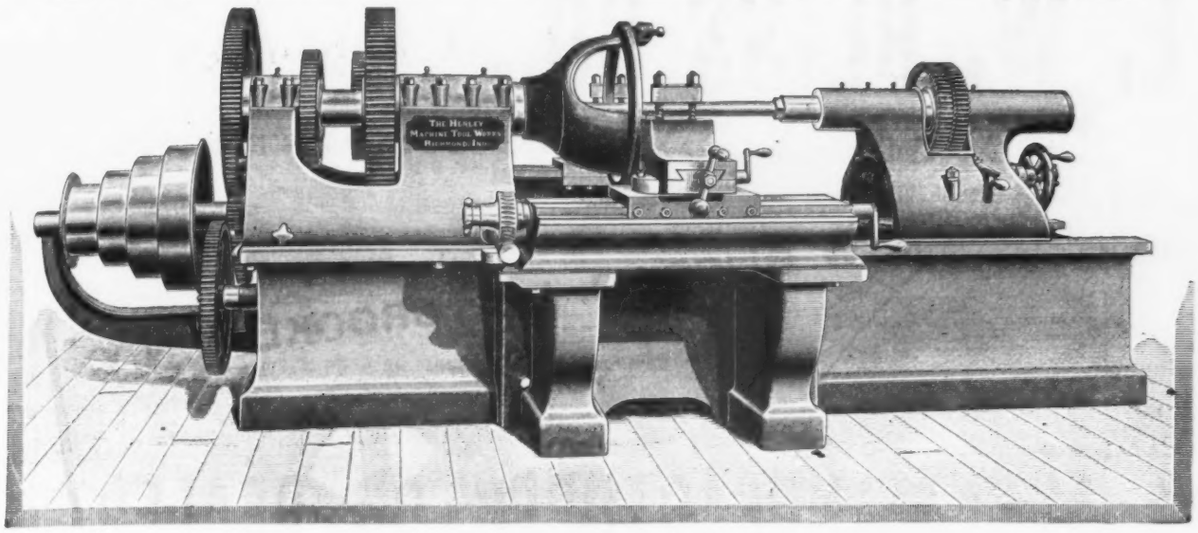

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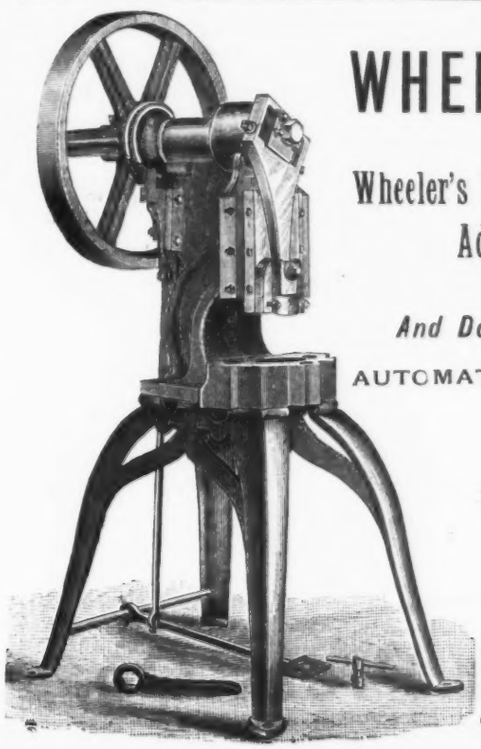

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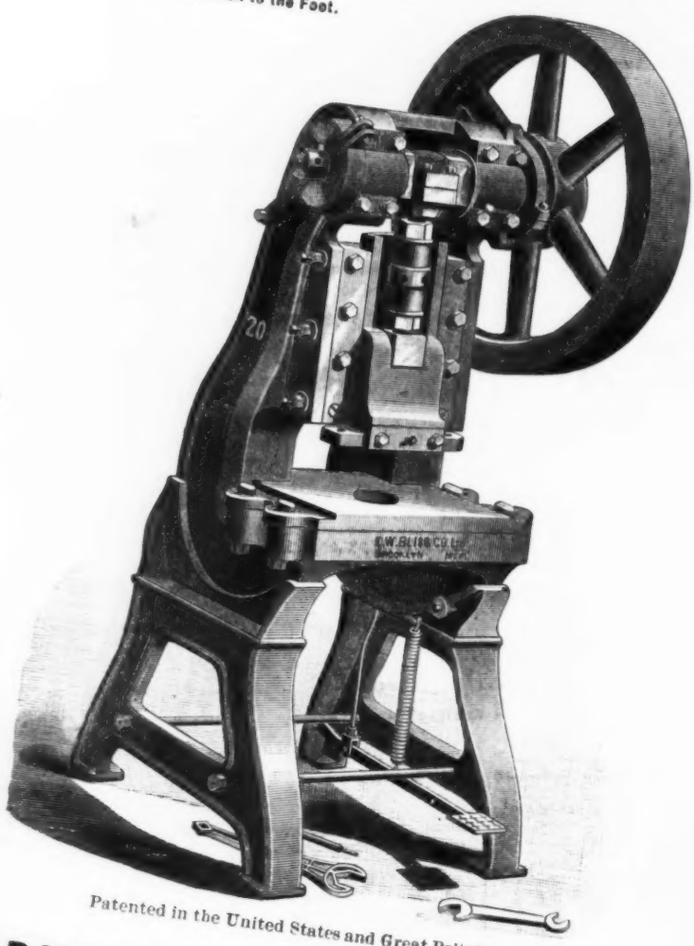

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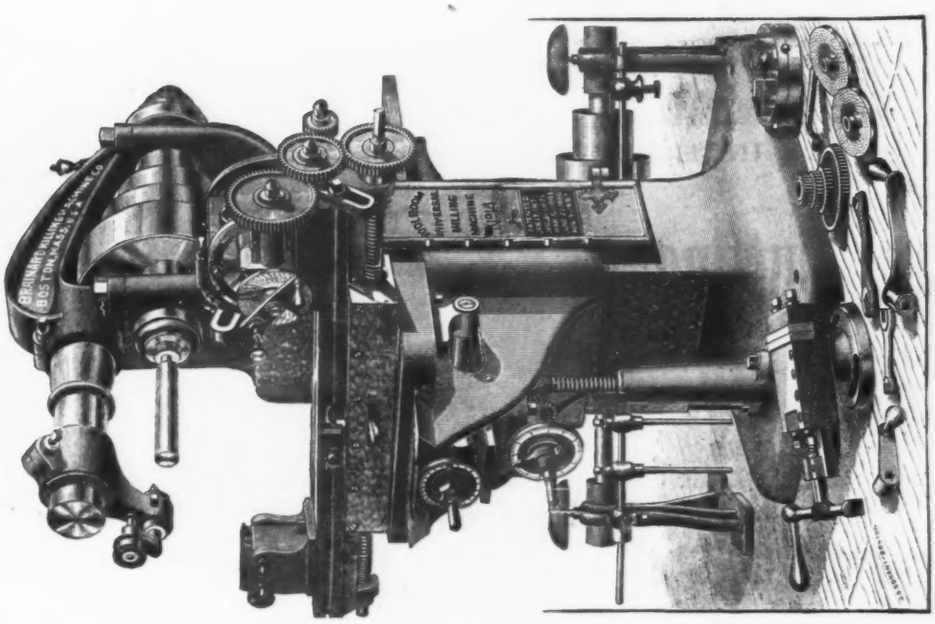

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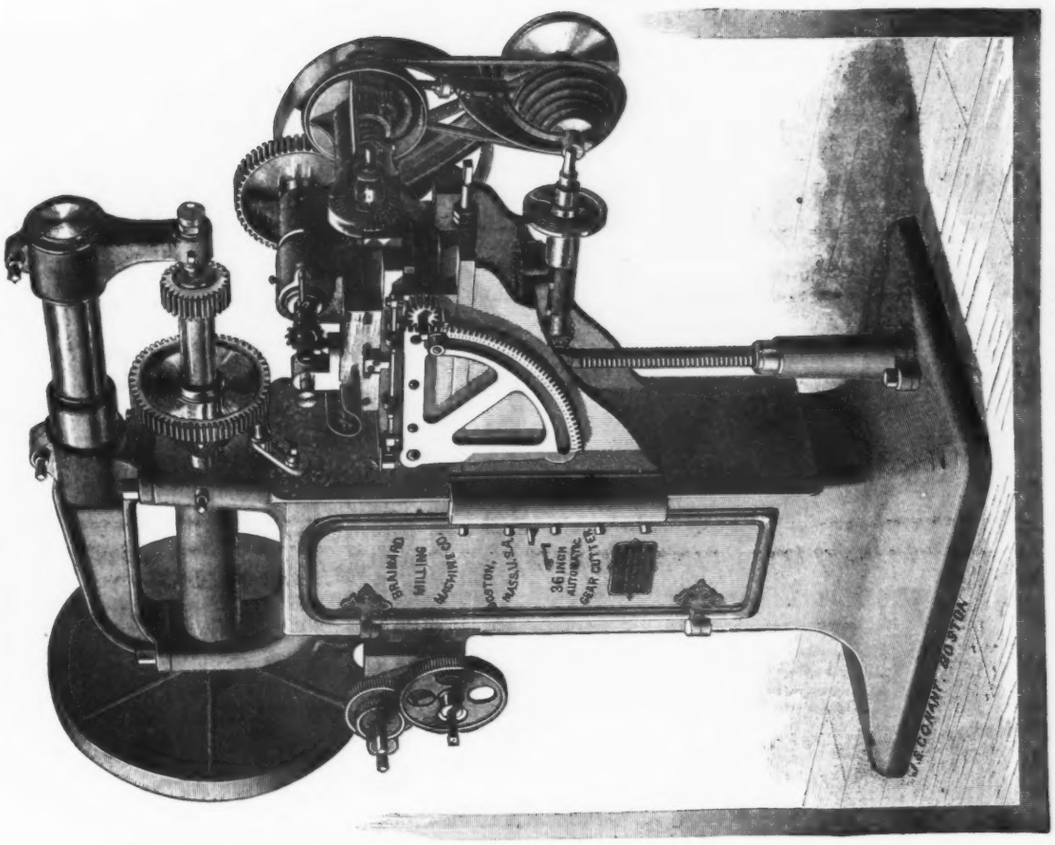

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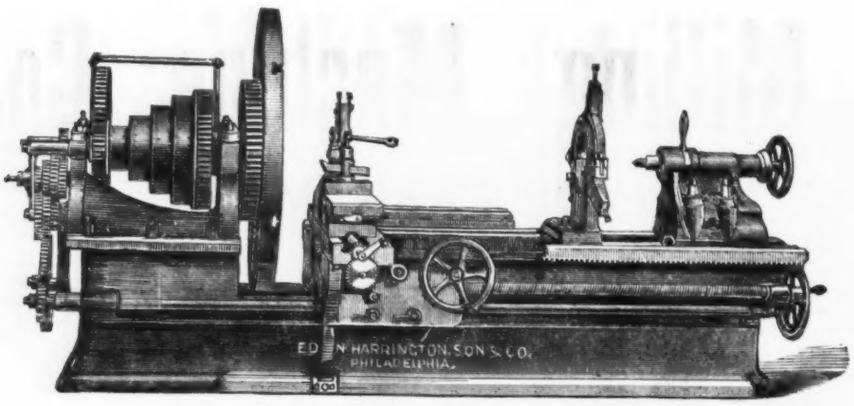

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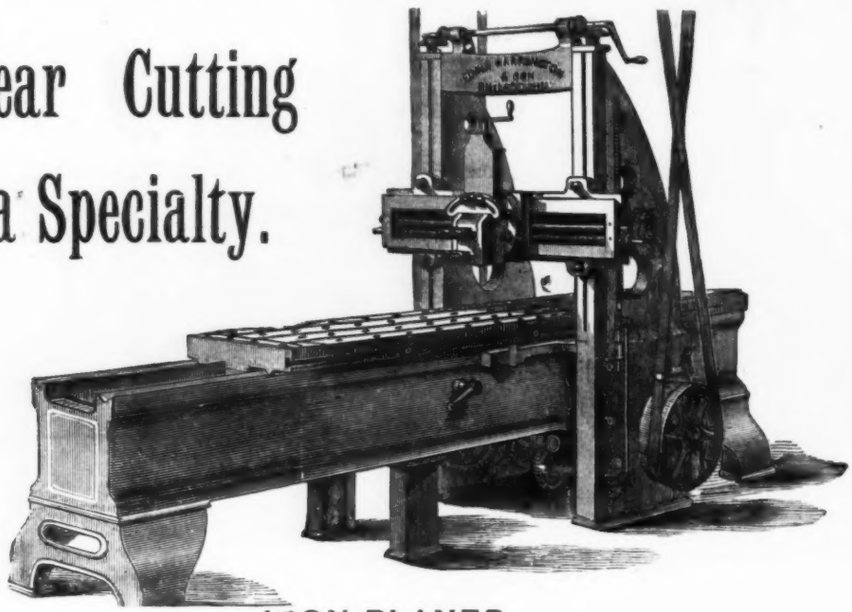

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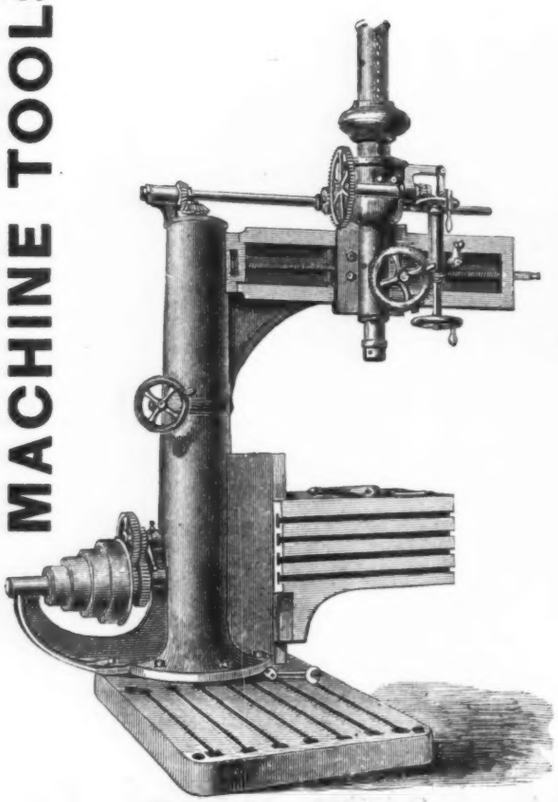

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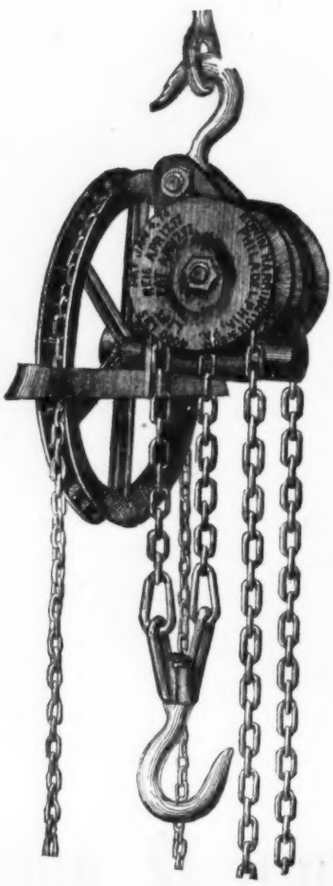

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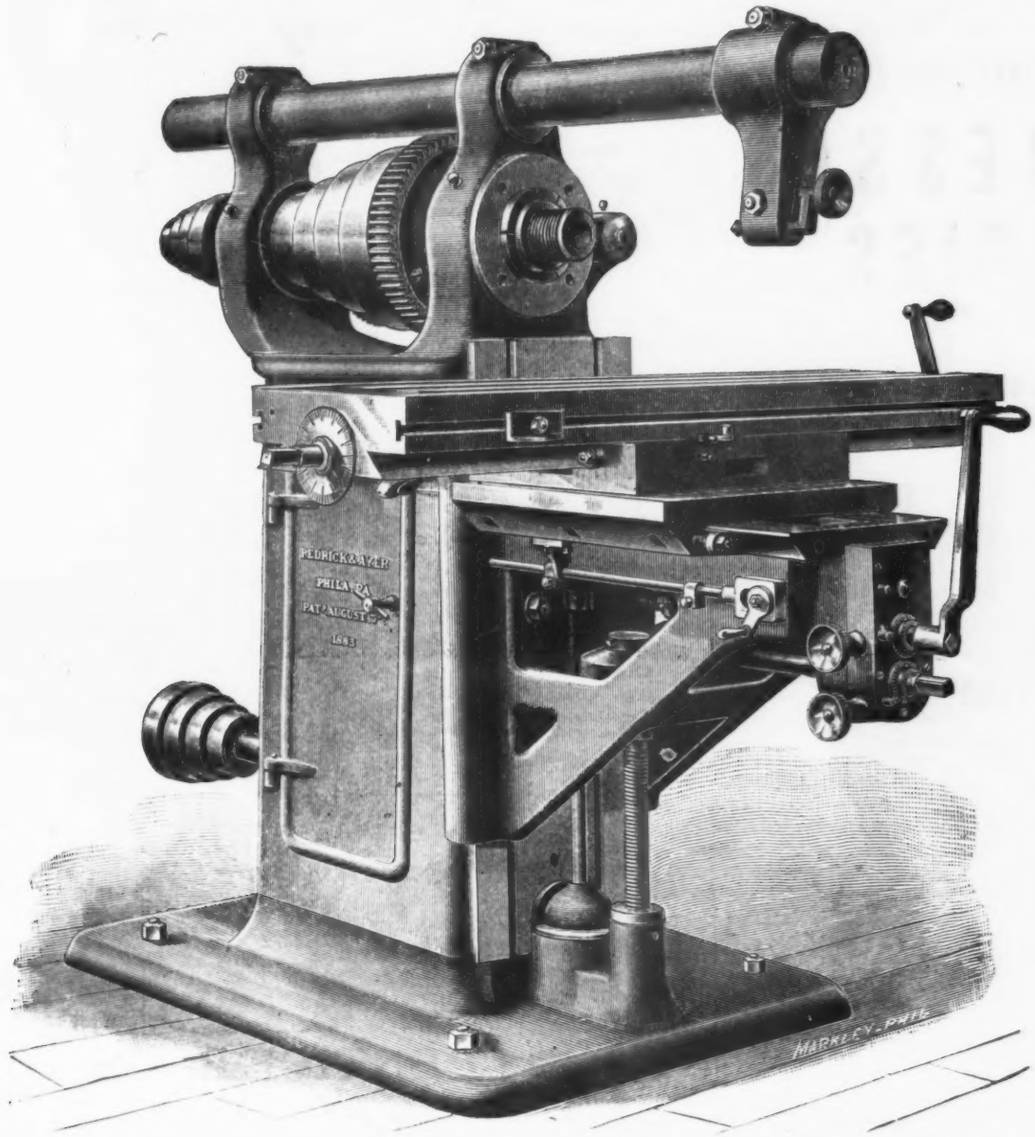

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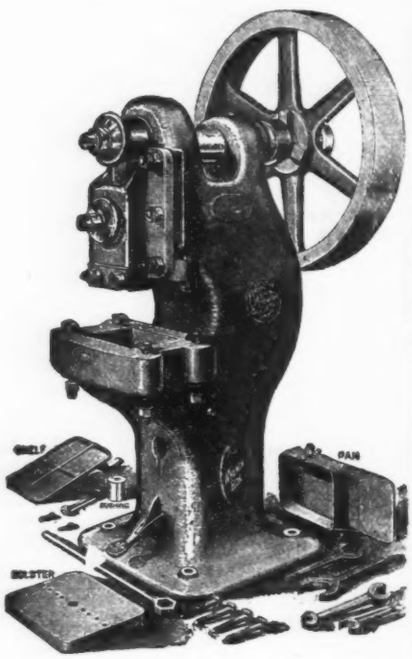

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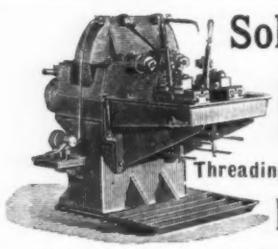

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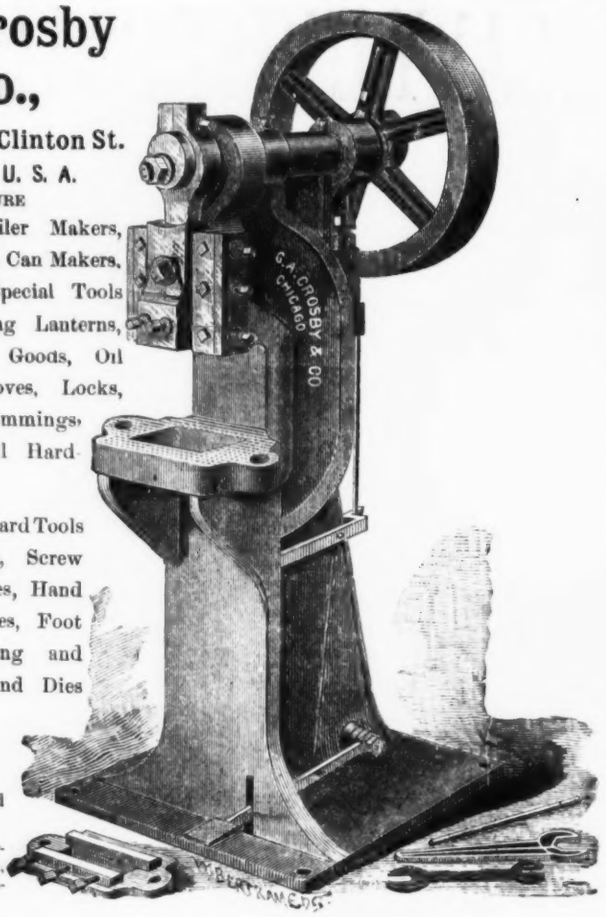

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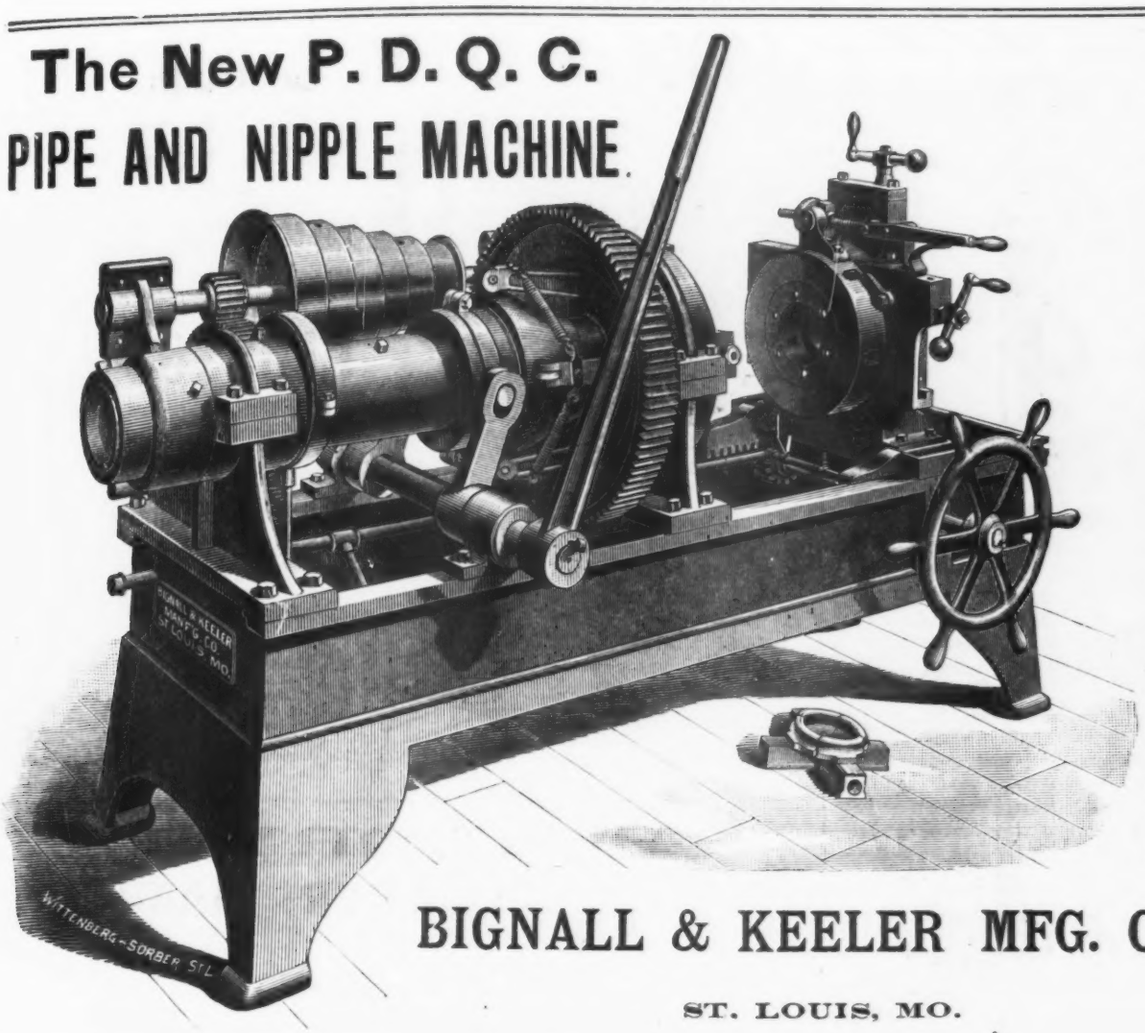

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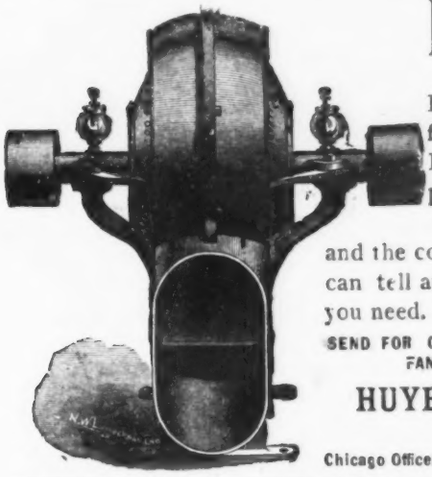

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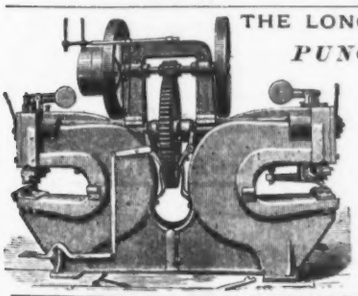

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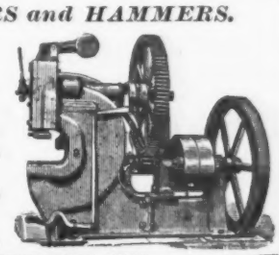

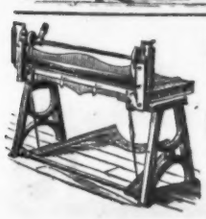

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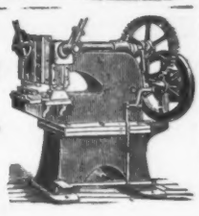

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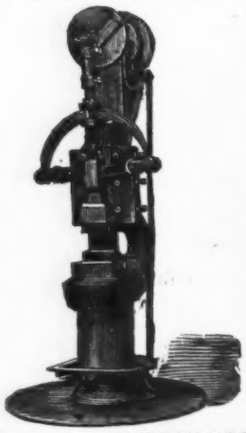

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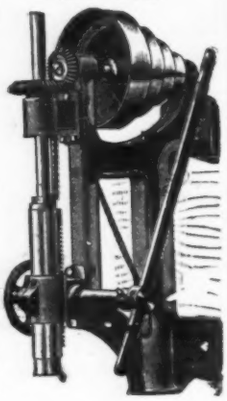

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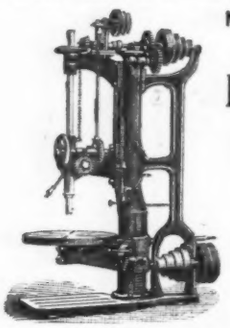

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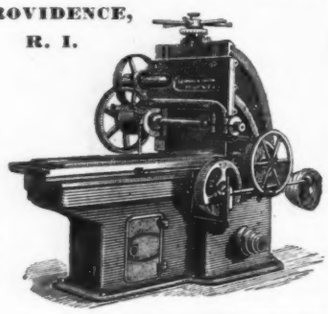

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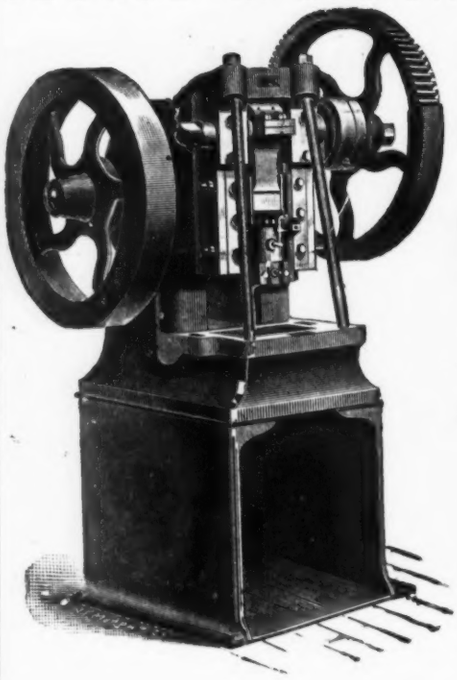

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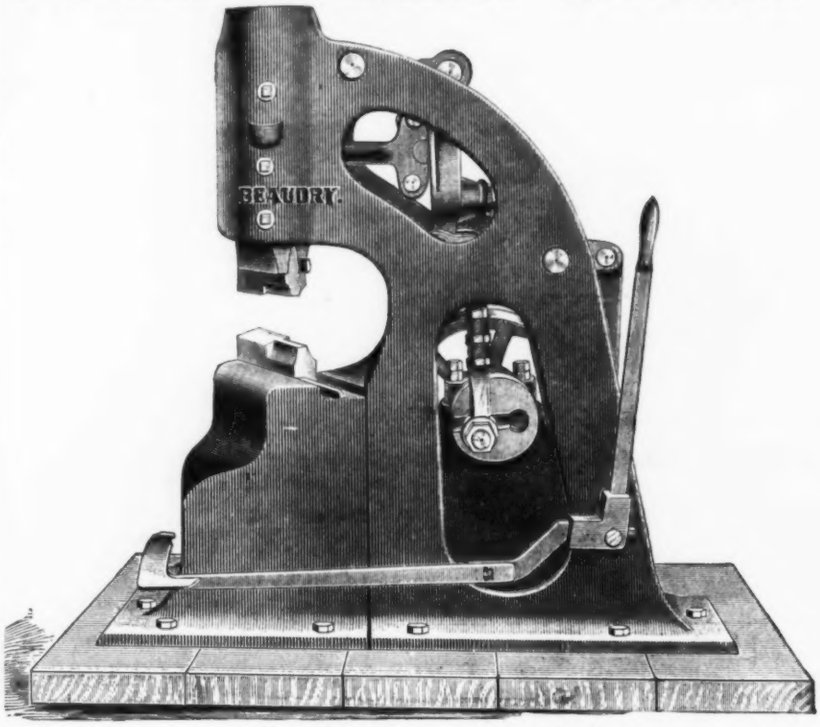

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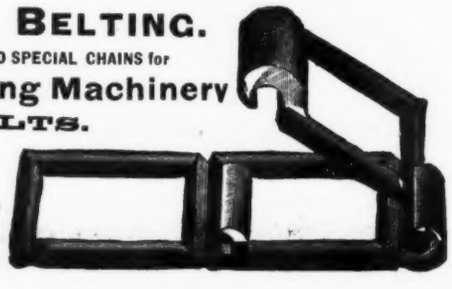

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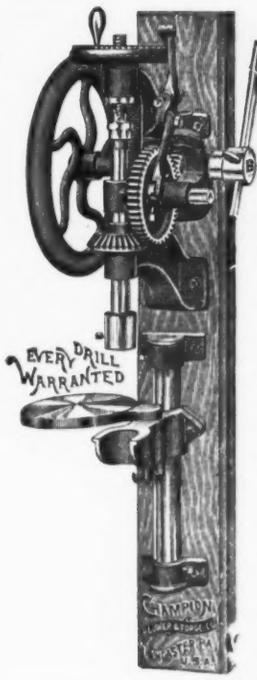

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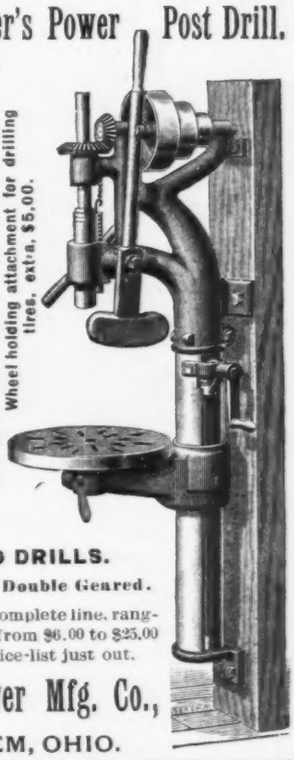

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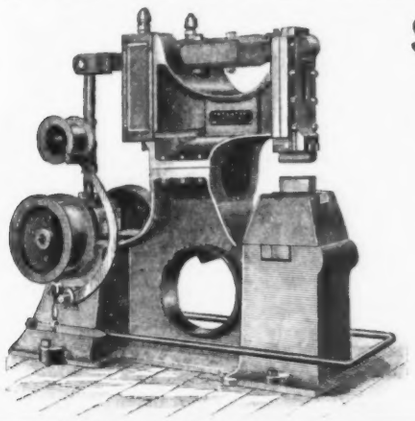

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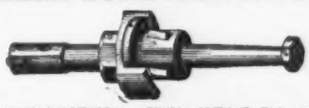

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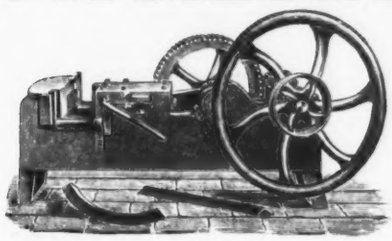

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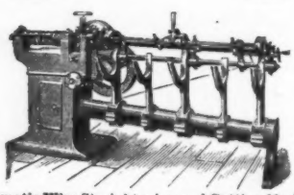

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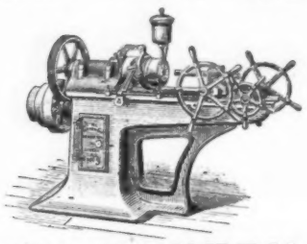

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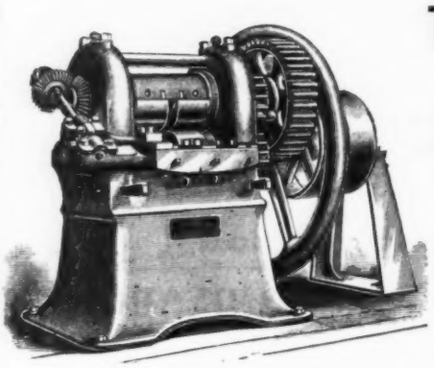

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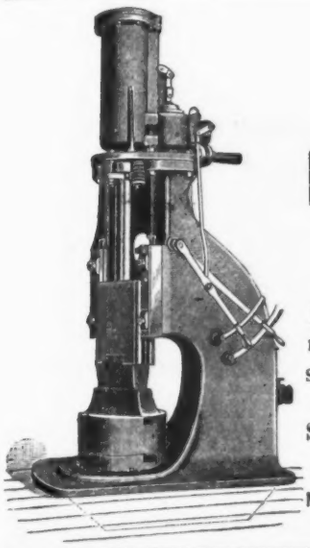

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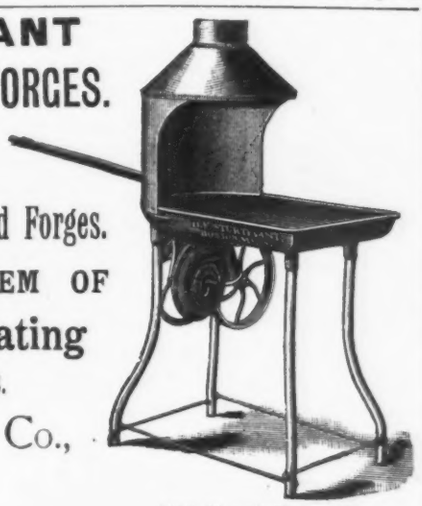

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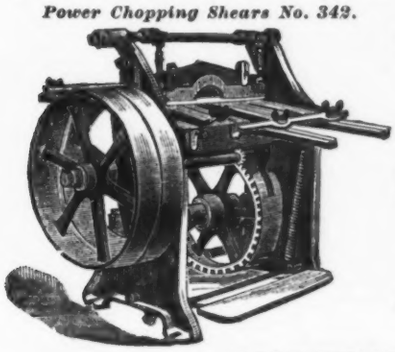

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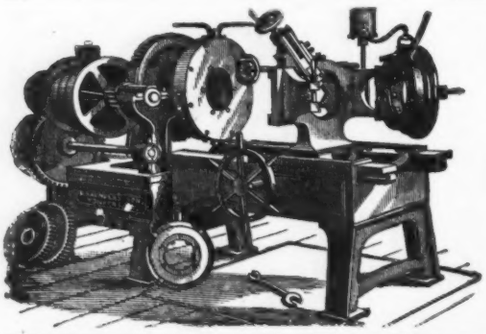

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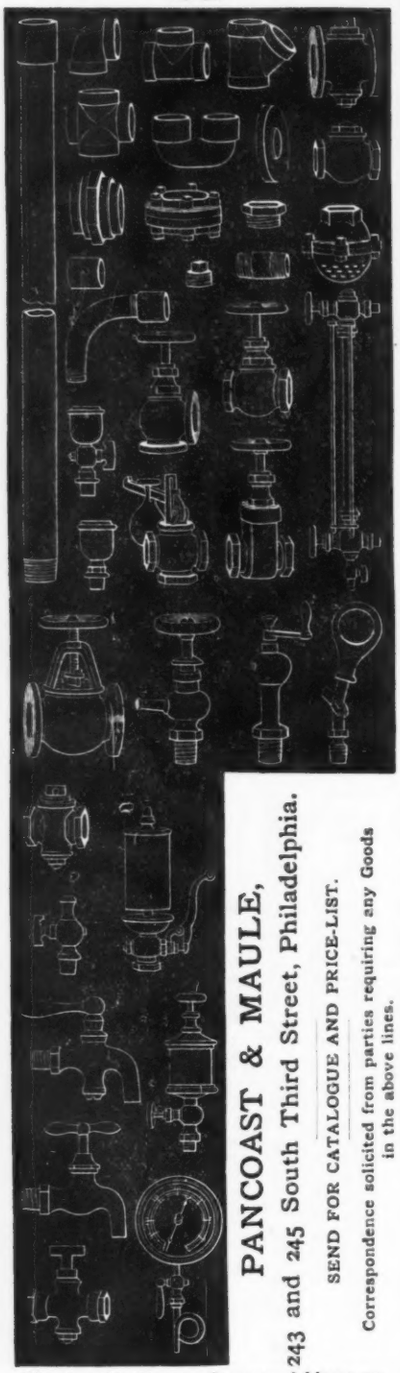

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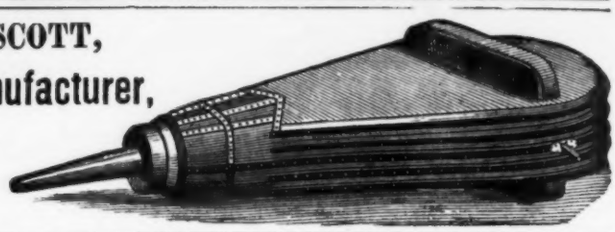

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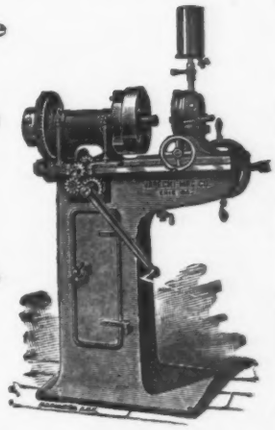

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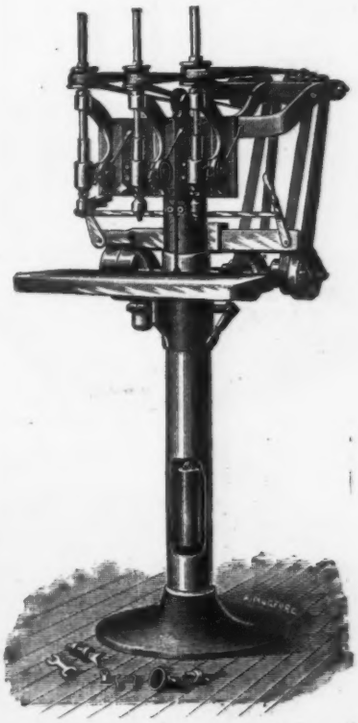

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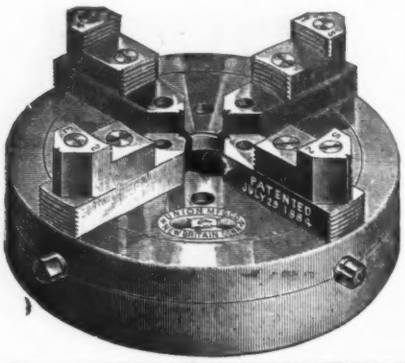

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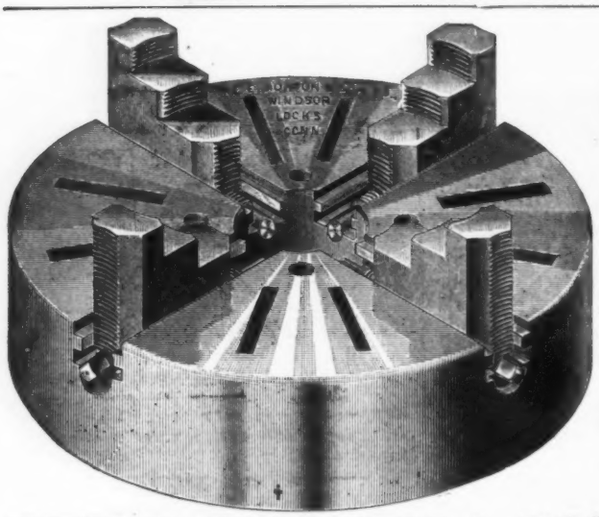

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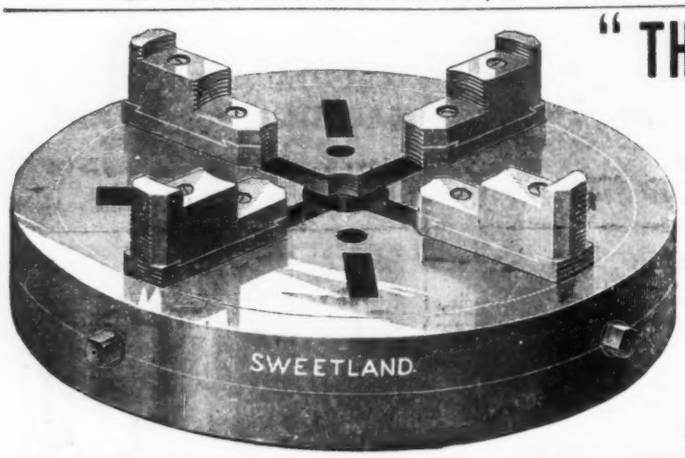

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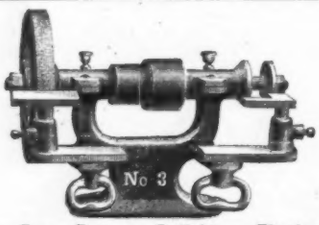

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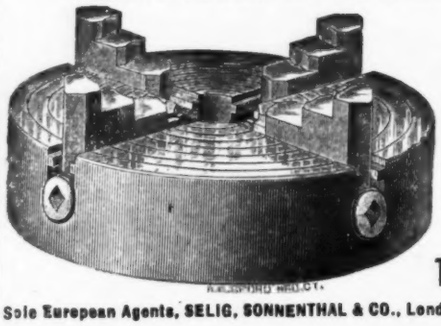

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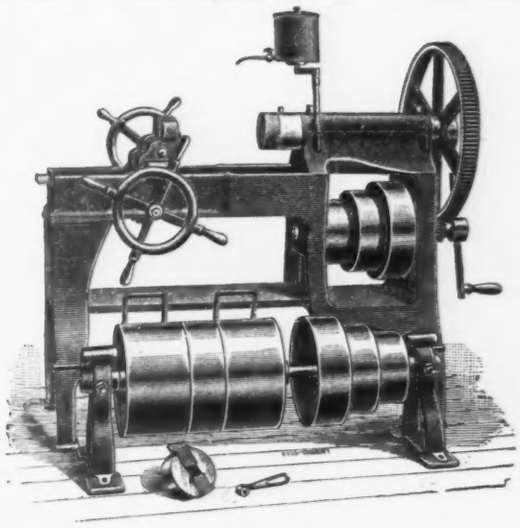

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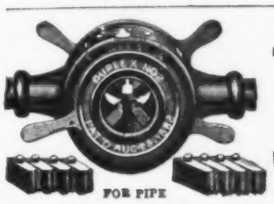

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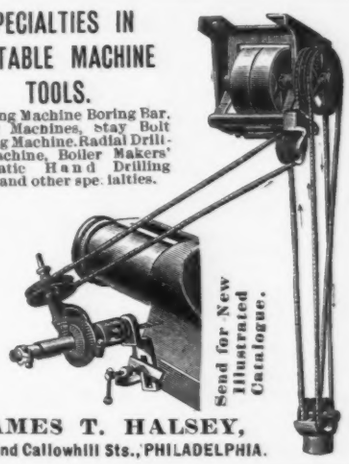

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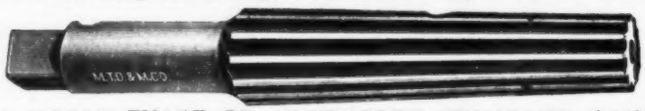

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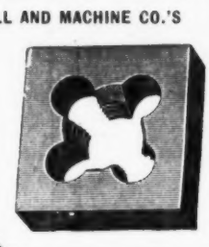

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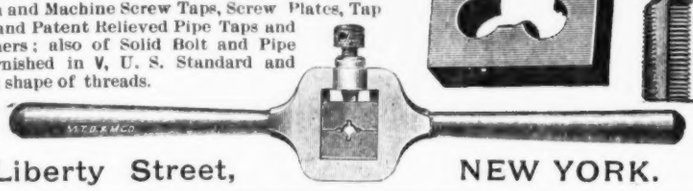

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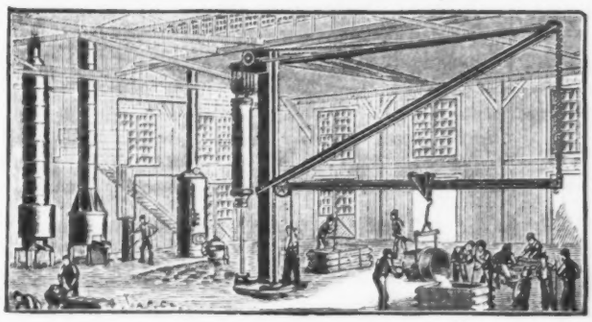

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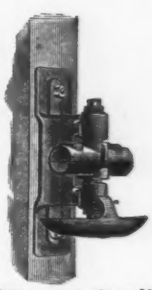

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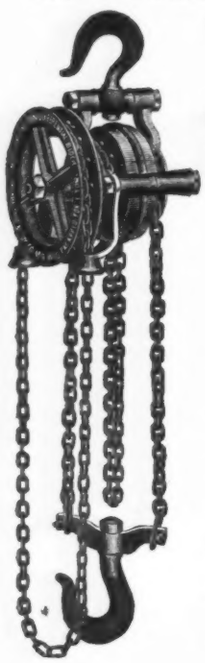

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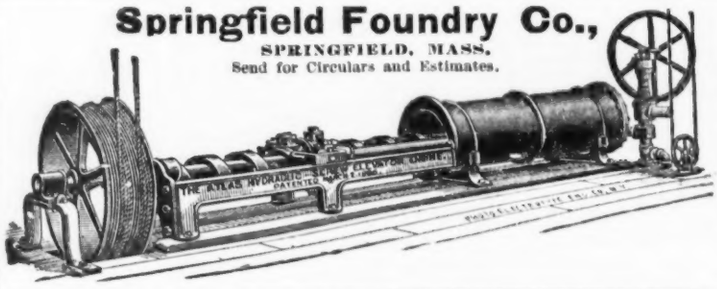

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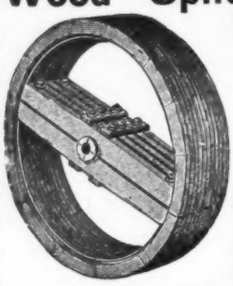

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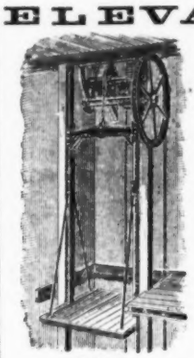

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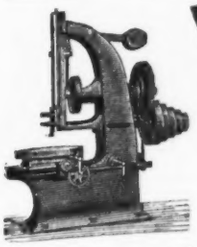

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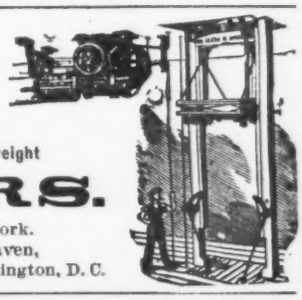

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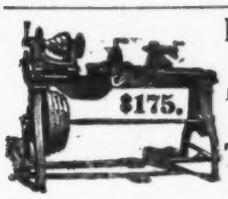

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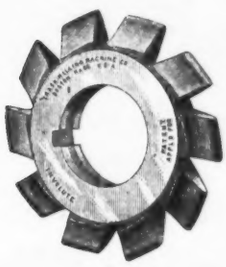

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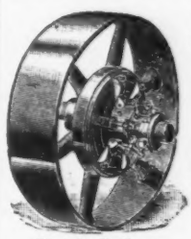

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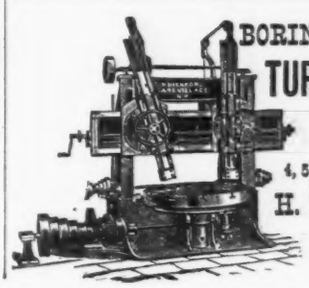

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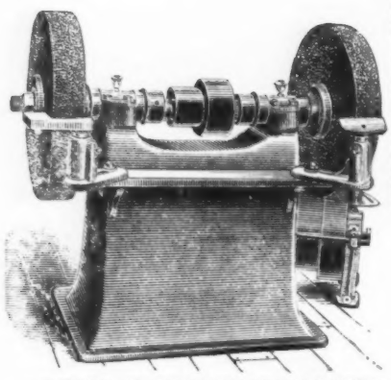

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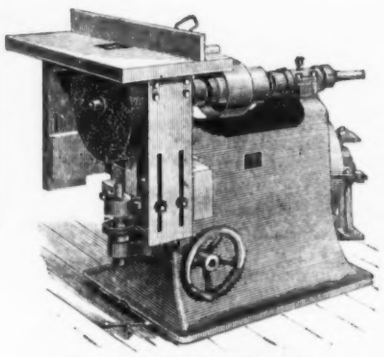

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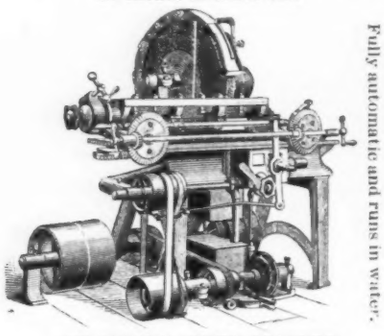

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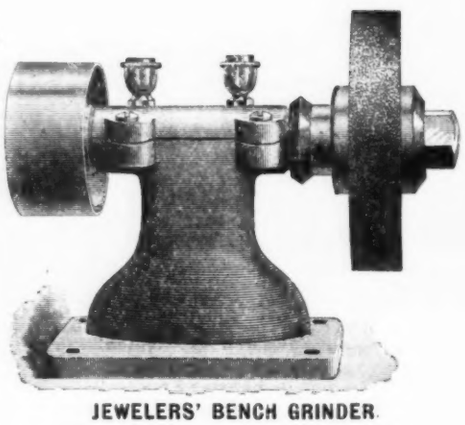

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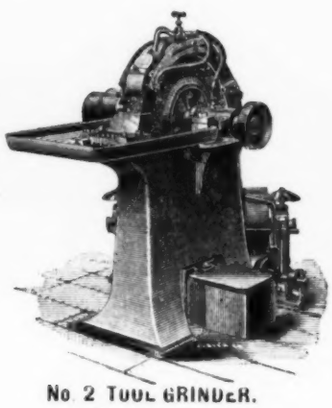

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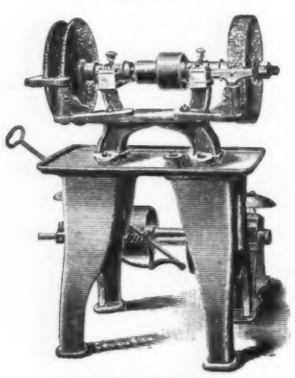

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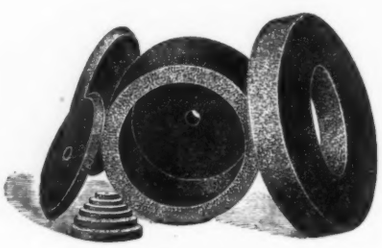
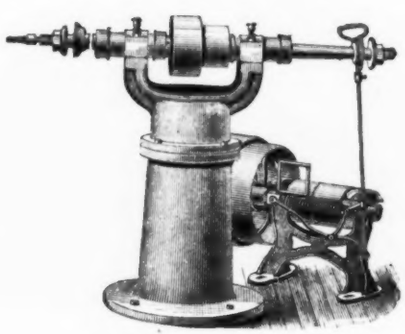


EMERY WHEELS.



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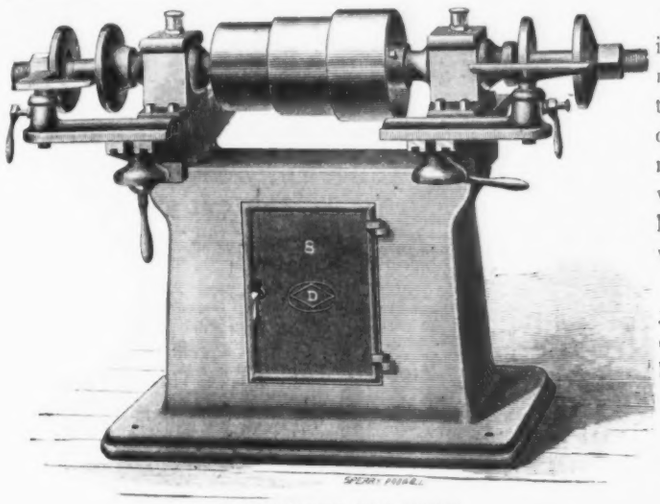

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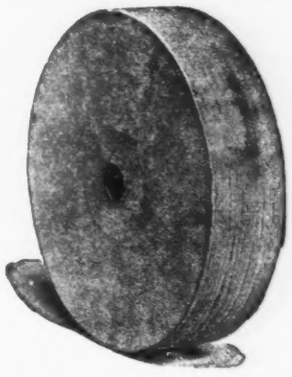

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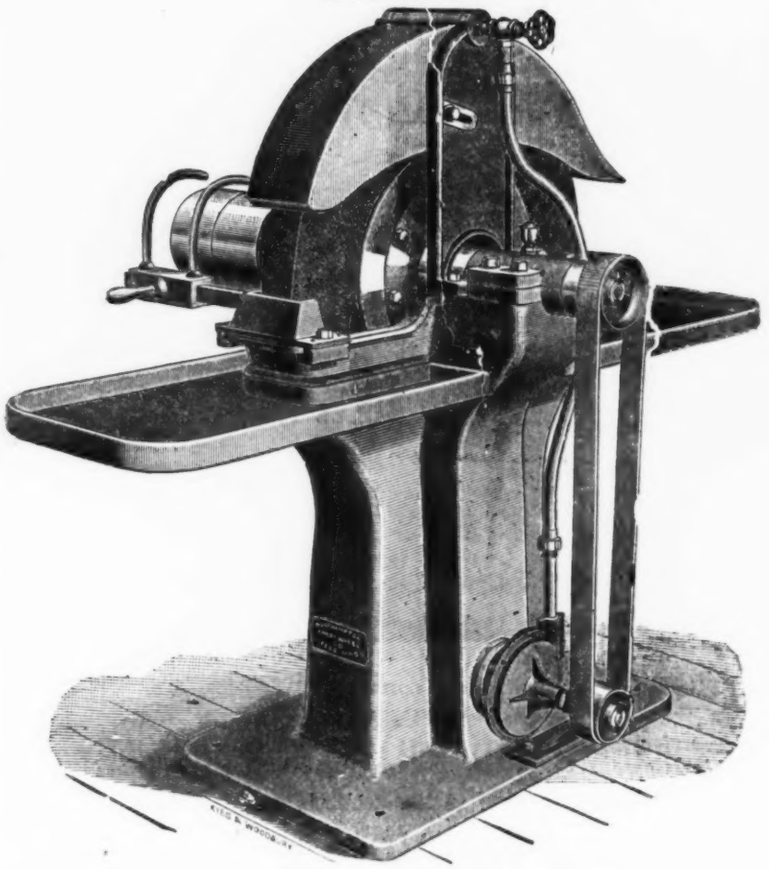

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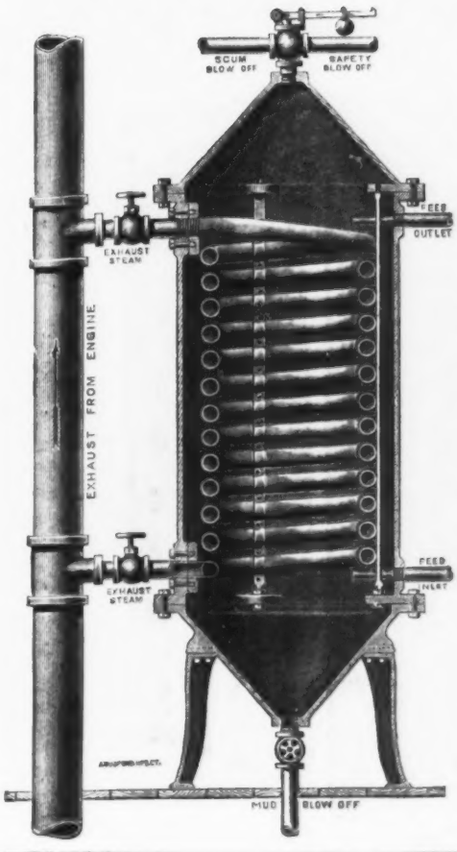

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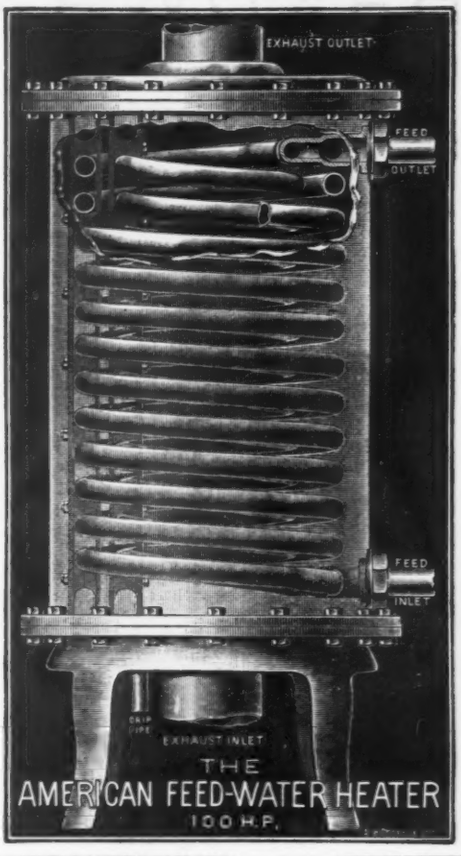

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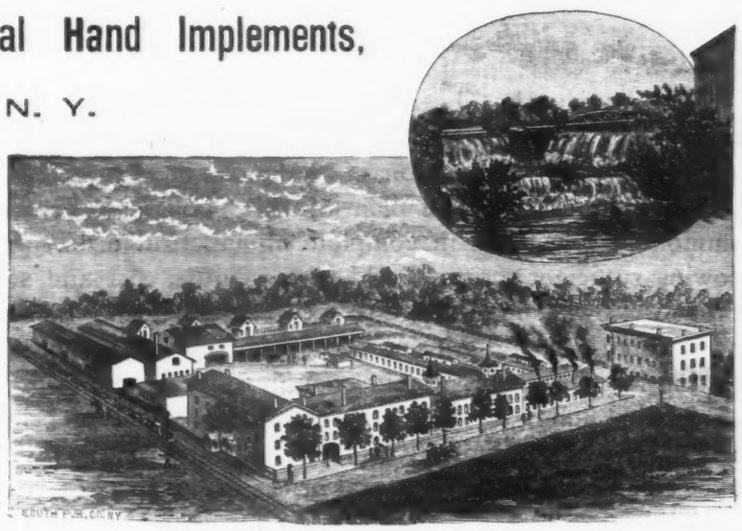

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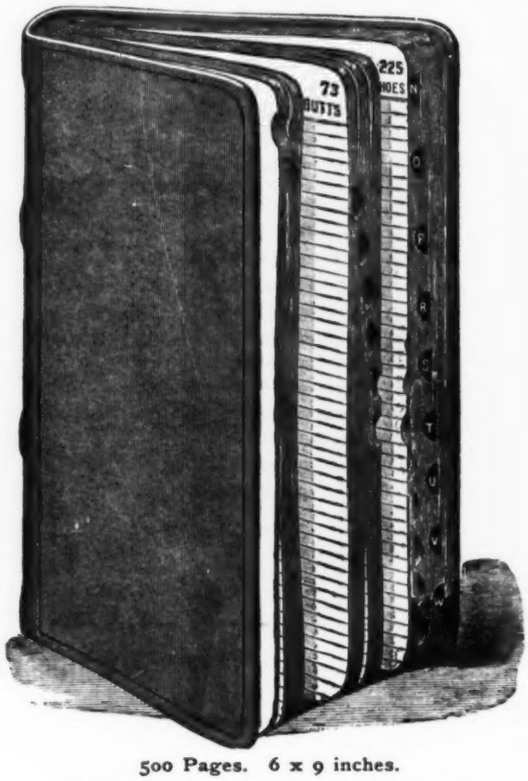

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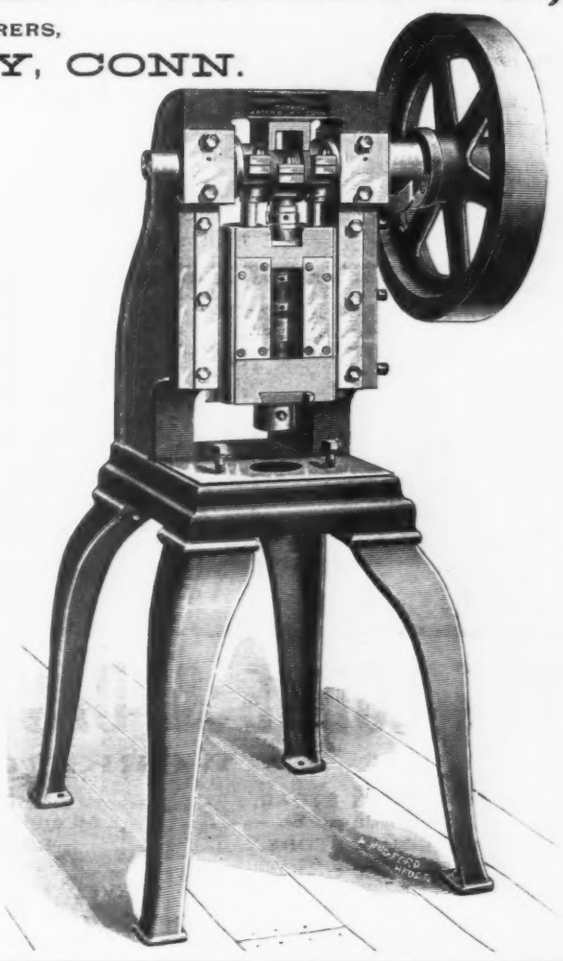

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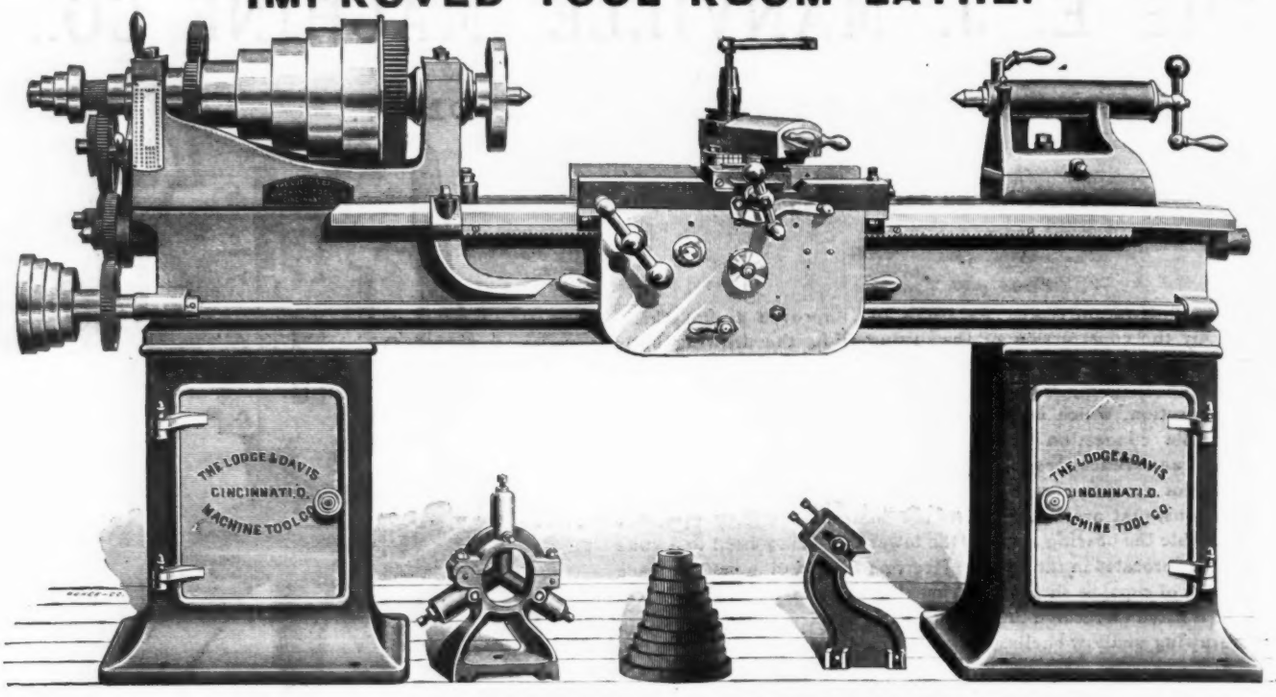

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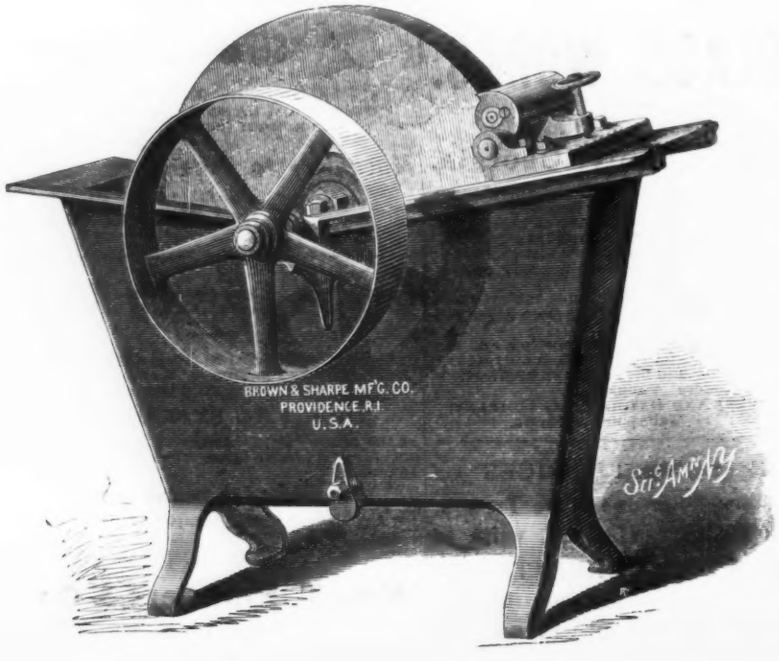

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Iron Planers, 16 in. x 16 in. x 3 ft.; 20 in. x 20 in. x 4 ft.; 24 in. x 24 in. x 6 ft. and 8 ft.; 30 in. x 30 in. x 6, 8, 10 and 12 ft.; 36 in. x 36 in. x 12 ft.; 44 in. x 48 in. x 22 ft. 6 in.; 52 in. x 50 in. x 17 ft.; 72 in. x 60 in. x 15 ft. and 60 in. x 49 in. x 24 ft.

C, D and E Horizontal Boring Machines, Newark Machine Tool Co.

50 in. Single Head Boring and Turning Mill.
72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-hand.
60 in. Vertical Boring Mill. Second-hand, L. W. Pond.

Send for list of new and second-hand Machinery.

PRENTISS TOOL & SUPPLY CO.,
115 Liberty Street, New York.
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Planer, modern, almost new, 34 x 30 x 8 ft.	$675.00
" " " " 22 x 20 x 4½ ft.	350 00
Lathe " " " 30 x 12⅜ ft.	575.00
24 in. x 16 ft. Putnam Lathe.	275 00
27 in. x 24 in. x 7 ft. Planer. Modern rebuilt	425.00
34 in. Barnes' Drill, Bk. Gd. Sf. Feed. New	275.00
28 in. " " " " "	245.00
1 1 in. to ¼ in Bergen bolt Cutter	125.00
No. 2 Power Press, Wt. 1400 lbs. New	150 00

Engines, Boilers, Pumps, Shafting, Hangers and Machinery.

AMER. TOOL WKS., Cleveland, O.

SECOND-HAND

MACHINISTS' TOOLS.

1 Planer, planes 16 ft. long, 62 in. x 62 in.
1 Planer, planes 8 ft., 32 in. x 30 in.
1 Novelty Iron Works Planer, 6 ft. 32 in. x 28 in.
1 Planer, planes 5 ft. 24 in. x 24 in.
1 Engine Lathe, 16 ft. bed, 84 in. swing, for Boring and Turning.
1 Engine Lathe, 10 ft. bed, 28 in. swing. Ames make.
1 Engine Lathe, 11 ft bed, 23 in. swing.
1 Engine Lathe, 10 ft bed, 24 in. swing. Old style.
2 Engine Lathes, 8 ft. bed, 18 in. swing. Good.
Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 475 lbs. Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¼ in.
And various other tools.

New York Machinery Depot,

Bridge Store No. 16, on Frankfort St., New York

GEORGE B. EDDY:

Second-hand Machinery.

Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

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Russell Automatic Engine 11 in. x 16 in.
Porter and Allen Automatic Engine 12 in. x 20 in.
Phœnix Automatic Engine 10 in. x 12 in.
Phœnix Automatic Engine 15 in. x 16 in.

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A MACHINE SHOP

OF

Second-Hand Tools

For Sale SINGLY.

MOSTLY FITCHBURG TOOLS.

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N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

14 in. x 6 ft. Engine Lathe, screw front, double T rest.
15 in. x 4 ft. Engine Lathe, screw back, double T rest.
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16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in. x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest.
16½ in. x 6 ft. Engine Lathe, screw front, compound rest.
17 in. x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17⅜ in. x 4 ft. Engine Lathe, screw back, double T rest.
17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
17⅝ in. x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
21⅝ in. x 10 ft. Engine Lathe, screw front, compound rest.
21⅝ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 10 ft. Engine Lathe, screw back, double T rest, cross feed.
22 in. x 10 ft. Engine Lathe, screw front, double T rest.
25 in. x 14 ft Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1⅜ in. holes with 12 in. diam. 3-jaw combination chuck.
13 in. x 6 ft, Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

PENNSYLVANIA MACHINE CO., Ltd.,
31 N. Seventh St., Philadelphia, Pa.
(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

5-clay and ore pans, 11 rail, bar, sheet and clipping shears, 23 hoisting engines, 41 stationary and portable boilers, 48 stationary and portable engines, 12 steam and 9 centrifugal pumps, 3 air compressors, one standard gauge road engine and one standard gauge shifting engine.

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DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¼ x 10 in., with Double Drums. Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

FRANK TOOMEY,
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FOR SALE CHEAP.

1 28 in. x 13 ft. Lowell Lathe. Heavy Tool. Fair order
1 20 in. x 8 ft. Gleason Lathe. Good order.
1 18 in. x 6 ft. Pond Lathe. Fair order.
1 17 in. x 6 ft. Putnam Lathe. Fair order.
1 16 in. x 6 ft. Michael Lathe. Good order.
1 15 in. x 5 in. Moore Lathe. Good order.
1 14 in. x 6 ft. Blaisdell Lathe. Good order.
1 14 in. x 5 ft. Blaisdell Lathe. Good order.
1 13 in. x 5 ft. N. Y. S. L. Co. Lathe. Good order.
1 12 in. x 6 ft. Betts Lathe. Fair order.
1 11 in. x 5 ft. Prentice Lathe. Good order.
1 24 in. x 24 in. x 5 ft. Powell Planer. Good order.
1 22 in. x 22 in. x 5 ft. Putnam. First-class order.
1 22 in. x 22 in. x 4 ft. Powell Planer. Good order.
1 17 in. x 17 in. x 4 ft. Old Style Planer. Cheap.
1 22 in. Prentice Drill, B. G. S. F. First class order.
2 Sate Sensitive Drills. Good order. Cheap.
1 Lincoln Pattern Miller. Good order, with vise.
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1 No. 4½ Wiley & Russell Bolt Cutter. First class.
1 Old Style Davis Key Seater. Good order.
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1 B. & S. Screw Machine, 8 in. swing. Good order.
1 B. & S. Head Finisher. Good as new.
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1 No. 6 Boston Blower. Good as new.
1 Automatic Wood Lathe. Clement. Good as new.
3 16 in. Wood Lathes, complete with countershaft. Clement. First class.
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1 15 in. Buzz Planer. Clement. First class.
1 24 in. Planer. Graham. First-class.
2 Vertical Boring Machines. Clement. First-class.
1 Saw Bracket. Graham. First-class.
1 Horizontal Boring Machine. Clement. First-class.
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1 Shaper. Graham. First-class.
1 Chuck and Heads for Chair Rounds.
2 First-Class Glue Heaters.
1 Gould Planer Cutter. Good order.
1 250 Light Dynamo. Good order.
1 Shear and Punch combined. Light machine.
1 Nut and Washer Punch. Cheap.
1 Lot Wire Drawing Machines. Very cheap.
1 Lot Nail Making Machines. Very cheap.
1 Large Sorghum Roller. Weight 16 000 lbs. Very low.
1 44 in. Boring Lathe. Good as new.
1 36 in. Cupola, Blower, Rattler and Ladles. Good as new.
1 Power Chain Hoist.
1 Grindstone with iron frame. Cheap.
1 Steam Pump. Good order.

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Rochester, N. Y.

See balance of list next Issue.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Splining Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 20 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,
143 Liberty Street, N. Y. City.

BARGAINS FOR CASH.

Write for Prices.

1 32 in. Lathe, 5 ft. bed.
1 24 in. Lathe, 10 ft. bed.
1 24 x 24 x 7 ft. Planer.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 28 in. Lathe 13½ ft. bed.
1 14 in. Lathe, 6 ft. bed.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " " "
2 42 in. x 11 ft. " Boilers "
1 22 in. Niles Drill Press.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " "
1 4 H.-P. Baxter Engine and Boiler.
1 15 H.-P. Shapely " " "
2 34 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P Horizontal Engines and Boilers. New and Second-hand.
1 26 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft. Porter Lathe. New.
1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

LOVEGROVE & CO.,
Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in. swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,
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FOR SALE.

Four 100 H.-P. Horizontal Tubular Boilers.
Two 80 H.-P. Horizontal Tubular Boilers.
One 75 H.-P. Horizontal Tubular Boiler.
Two 60 H.-P. Horizontal Tubular Boilers.
One 40 H.-P. Horizontal Tubular Boiler.
One 30 H.-P. Locomotive Fire Box Boiler.
Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.
D. B. CRUICKSHANK,
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Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,
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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

THE SCRANTON SUPPLY AND MACHINERY CO.,
Scranton, Pa.

Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

WM. H. PERRY & CO.,
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FOR SALE.

New and Second-Hand
METAL WORKING
MACHINERY.

Send for list of same for immediate delivery.

Wanted to Purchase for Cash,
Second-Hand
Metal Working Machinery.

Geo. Place Mch. Co.,
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VERTICAL BLOWING ENGINE FOR SALE.

50 in. diam. steam cylinder, 62 in. air cylinder, stroke 5 feet, in good condition. Price reasonable.

ROCK DRILLS 5 in. to 13¾ in; **LIGHT LOCOMOTIVE** 36 in. gauge; **STEAM SHOVEL; AIR COMPRESSORS.**

F. W. IREDELL,
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900 Tons New Cast Iron
WATER PIPE

10, 14, 16, 16½ and 20 inch.

At a Big Sacrifice.

Speak Quick If You Want It.

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FOR SALE.

SECOND-HAND,

1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

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FOR SALE.

WAGON SKEIN PLANT.
LONG ARM AXLE PLANT.

Patterns, Machinery and Tools. Also Wagon Box Patterns.

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FOR SALE.

35 lb. and 30 lb. T rails, second-hand, suitable for relaying; four miles with fastenings, by

MANOGUE-PIDGEON IRON COMPANY,
Memphis, Tenn.

FOR SALE.

One pair Howe Truck Scales, four beams, 34 feet long, weight 122,000 pounds. As good as new.

THE COLUMBUS IRON & METAL CO.,
Columbus, Ohio.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $300 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

Bargains for cash before removing to our new store, 46 N. 7th St.

One 10 x 24 Horizontal engine. A No. 1 condition.
One 4 x 4 " " " "
One 8 x 14 Vertical " " "
One 6 x 6 " " New.
One 7 x 7 " " "
One 5 x 6 " " "
One 6 x 7 " " "
One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.
HIGH & DAMPMAN, No. 123 N. 3rd St. Philadelphia.

—ENGINE.—

800 H.-P. Horizontal Engine.
Cylinder 30 in. diam. x 7 ft. stroke.
Fly-wheel 22 ft. diam. rim 10 in. x 12 in.
Suitable for Blast Furnace or Rolling Mill.
Also, Double Acting Plunger Pump For Sale Cheap.
C. W. SCHULTZ & CO,
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FOR SALE.

One 21 in. x 13 ft. Lodge & Davis improved Engine Lathe. Complete.
One 24 in. x 30 ft. Fifield Engine Lathe. Complete.
One No. 3 Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.
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BESSEMER PIG IRON

3000 tons No. 1 Bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

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STEEL RAILS.

We offer 100 tons second hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).

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1 2000 lb. double standard Bement Steam Hammer with Anvil and Extra Piston Rod. Hammer is in first-class condition. Immediate delivery.
100 lb. Bradley Cushion Hammer.

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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address
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FEED-WATER HEATERS,

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

BENJ. F. KELLEY & SON,
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Large lot of Loco. Boilers,
50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
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BOILER TUBING

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address
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FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals
BUSSENIUS & CUNLIFFE,
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FOR SALE.

CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

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Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.
THE GOULDS MFG. CO.,
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One 32 in x 48 in. Corliss Engine; has 14 in. forged shaft, 23 feet long and 50,000 pound fly wheel, all in first class order. Address
J. A. VAIL,
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FOR .·. SALE .·. CHEAP,

One 14 x 20 Russell Automatic Engine, with line shaft and friction clutch pulleys, nearly new.
One 8½ x 8 Westinghouse engine. Both taken in exchange for Ideal engines.
One 21 in. Steptoe Lathe.
One 18 in. Star Tool Co.'s Lathe.
One 36 in. back geared New Haven Drill.
A. L. IDE & SON.,
Springfield, Ill.

WANTED.

SECOND-HAND MACHINERY.

2 Pulleys, 10 ft. x 24 in. face, hub for 12 15 16 to 13 in shaft.
2 Pulleys, 5 ft. x 24 in. face, hub for 6 15-16 to 7 in. shaft.
1 Shaft, 6 15-16 to 7 in., 9 ft. 8 in. long.
4 Housings for 18 in. to 22 in., 3 high train.
Would vary a little from above sizes.
Address "SECOND-HAND,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

—:CORLISS:—

Automatic Engines

—ALSO—

Electric Light, High Speed and Slide Valve Engines in first-class condition for immediate delivery at very low prices.

1 30 x 72 Corliss Condensing Engine.
1 Pair Corliss Condensing Engines, 20 x 48.
1 23 x 36 Corliss Engine.
1 20 x 48 Corliss Engine.
1 16 x 42 Corliss Engine.
1 12 x 36 Corliss Engine.
1 Pair Woodruff & Beach Condensing Engines, 20 x 48.
2 11 x 20 Buckeye Engines.
1 14 x 24 Buckeye Engine.
2 13 x 12 Armington & Sims.
Slide Valve Engines, 11 x 24, 10 x 16, 10 x 12 and 8 x 8.
Several Steel Tubular Boilers 50 to 125 H.-P. also, several sizes Pumps, Rock-Drills, Fan Blowers, &c., &c. Send for Circular.

GEORGE M. CLAPP, Agt.,
74 Cortlandt Street, N. Y.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.
SECOND-HAND MACHINERY.

Corliss Engines, 30 x 60, 26 x 30, 26 x 42, 24 x 48, 18 x 48, 12 x 36.
Wright Automatic Engine, 22 x 42
Brown Automatic Engine, 8 x 42.
Watertown Automatic Engine, 18 x 28
Woodbury Automatic Engine, 12 x 18
Ball Automatic (High Speed) Engine, 12 x 12

Extra Heavy Knuckle Joint Press.

Built by G. H. Bushnell Co. of Thompsonville Ct., for pressing Dried Brewer's Grains. Worked satisfactorily. Nearly new. Presses bales 18 in x 36 in x any required length up to 6 ft. Late improvements. Price and Blue Print on application

Vertical Engines, Slide Valve Engines, Propeller and Yacht Engines, single and compound.
Horizontal Boilers 25 to 60 H.-P.
Zell Sectional Water Tube Boiler, 75 H.-P.
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Send for Lists.

General Machinery.
MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers, 6 spindle for ¾ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern
2 Heaters, medium and large size.
1 No 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.
W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

WANTED.

SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.
"MANUFACTURER" P. O. Box 1840,
New York, N. Y.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler, eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

Changed Weekly.

— FOR SALE. —

BOLT HEADERS.—Five new, two second hand, made and owned by Samuel Hall's Sons, 229 West 10th Street. Will make all kinds of bolts; will make square and hexagon without changing tools; will make round, square, button head, round or square under the head; will head rivets; will head from ¼ to 1¼ inch inclusive. These are made in the strongest manner and for service. If you can use or sell write them direct, or the undersigned.

CARS, Flat, 12 Penna. R. R. Standard.
ENGINE, Roper, 5 H.-P. Offer wanted.
GAS ENGINES, 5 and 10 H.-P., new, guaranteed, perfect order, will put in on trial within reasonable distance. By Pennsylvania Diamond Drill Co.
TO TOOL MAKERS, have large lot of seasoned Dogwood and Persimmon Blocks, sawn to sizes. Can you use them?
STREET CARS, combination, half open, half closed.
LOCOMOTIVE, 35 in., saddletank. Perfect order. Pa.
PIPE, 6 inch flange, good.
WIRE for bundling, different sizes.
CARS dump, 20, side, 2 and 5 yds.
RAILS, 16s, 20s, 35, fits to relay.

— WANTED. —

Correspondents in every town and city to whom I can send lists of what is offered me for sale and to whom I can offer agencies for articles that are sent me. Let me hear from you.

H. H. Mansfield,
126 Liberty St., N. Y.

WATCH THIS SPACE

For Bargains in first-class second-hand Machine Tools. We have added to our already extensive Warerooms a large department for second-hand Machinery, and will have constantly a complete stock of good tools on hand for quick delivery. List changed bi-monthly.

ENGINE LATHES.

16 in. 6 ft. Blaisdell Rise and Fall X Feed Rest. Complete. Good order.
14 in. x 6 ft. Bogert, H. S. Rise and Fall Rest, complete A1 condition.
15 in. x 5 ft. Flather, H. S. Rise and Fall Rest, complete A1 condition.
13 in. x 5 ft. Pratt & Whitney Turning Lathe, H. S. Taper Attachment Automatic Trip to Carriage Feed. A1 condition.

PLANERS.

19 in. x 19 in. x 4 ft. Whitcomb a good tool. A1 condition.
22 in. x 22 in. x 6 ft. Whitcomb, good handy tool. A1 condition.

DRILLS.

3 20 in. Wheel Feed, Quick return. In good order.
No. 3 Garvin 4 Spindle Elevating Table. In good order
No 4 " 6 " " " A1 condition.
Pratt & Whitney 4 Spindle " " A1 condition.

MISCELLANEOUS.

No. 2 Brown & Sharpe Milling Machine. Good as new.
No. 5 Brainard " " A1 condition.
No. 3 Pratt & Whitney Back Geared Screw Machine, Power Feed to Turret, with lot of tools, a snap. A1 condition.
No. 1 Brown & Sharpe Screw Machine, lot of Tools. Good as new
1 Spindle Garvin Profiling Machine. Good as new.
No 2 Springfield Tool Grinder (a bargain) used 30 days
No. 51 Bliss Power Press A1 condition.
15 in. Hendey Shaper, rebuilt. A1 condition.
Write for list of over 300 new and second-hand tools in stock for immediate delivery.

THE GARVIN MACHINE COMPANY,
Laight and Canal Sts., N. Y.

Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,
59-73 West St., - Brooklyn, N. Y.

THOMSON-HOUSTON MOTORS FOR SALE.

One 35 H.-P., one 20 H.-P., T. & H. Motors, second-hand, in perfect condition, for sale cheap.

NEW BEDFORD IRON FOUNDRY,
New Bedford, Mass.

FOR SALE.

Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.
The Lodge and Davis Machine Tool Co.,
Cincinnati, Ohio.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

FOR SALE. WELL EQUIPPED Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

P. O. BOX 1119, New York.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address

T. C. KERRICK,
Bloomington Ill.

TIN WORKS.

A firm of engineers in South Wales, closely associated with the trade, are prepared to supply all plans, specifications and estimates for the erection and conduct of tin works embracing all the latest improvements for economizing the cost of production, and also to contract for the supply and erection of the same. Reply in first instance to

"TIN WORKS,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

Wanted, Manufacturers. FREE SITE, CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants*, in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties*. We are *not bound* to *any locality* and will give *unbiased information* on application.

Write for proposition blank.

AMERICAN LOCATING CO.

(INCORPORATED),
41 & 41A Nat. Ger. Am. Bank Bldg.,
St. Paul, Minn.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

$10 000 TO $100,000

In **CASH AND FREE SITE IN** the heart of the **COAL REGIONS** of **WESTERN PENNSYLVANIA** for a reliable manufacturing concern. Iron or steel industry preferred. **COAL DELIVERED BY THE QUANTITY AT LESS THAN ONE DOLLAR PER TON.** Write for particulars.

C. T. BEECKMAN,
136 Fifth Ave., Pittsburgh, Pa.

GREAT BARGAIN.

Large manufacturing plant, with three acres of land, at Pearl River, N. Y., 27 miles from New York City. Opposite Railroad Depot, two-story brick buildings, 300 feet long, with ample land for enlargement, with side track, &c. Well lighted all around; with 80 H.-P. engine and boiler, shafting and pulleys, iron melting furnace, cheap labor and freights. To be sold at a sacrifice to close an estate. For particulars apply to J. H. BRAUNSDORF, Executor, Pearl River, N. Y.

TO MANUFACTURERS.

South Bethlehem offers to manufacturers seeking locations the best railroad facilities, cheap fuel, plenty of cheap labor and land. The town is at the junction of the Lehigh Valley R. R. and North Pennsylvania R. R., 97 miles from New York and 54 miles from Philadelphia; is within 34 miles of the anthracite coal fields; has fine schools, churches, good water supply, electric light, miles of well made streets and excellent markets. Apply to the

BOARD OF TRADE,
South Bethlehem, Pa.

SPECIAL TO MANUFACTURERS!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations. 170 x 900 feet; N. Y. C. R. R. switch full length of property. I will advance one-half money necessary for erection of permanent buildings.

E. G. FELTHOUSEN, Room 42,
534 Main St., Buffalo, N. Y.

FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No 1 Wrought Iron Scrap. Correspondence solicited.

WM. D. BENNAGE & CO.,
2213-2215 Hamilton St. Philadelphia

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST. PAUL, DULUTH, &c. with lowest freight rates to and from all points. ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.

CHAMBER OF COMMERCE BLDG, CHICAGO

THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,

Suburban Traffic Agt., 317 BROADWAY, N. Y.

FACTORY FOR SALE OR TO RENT

at NEWARK, N. J.

A two-story building 23 x 100, including shafting, piping, engine and boiler (60 H.-P.), suitable for almost any kind of manufacturing business. Good light on all sides of building and plenty of yard room. Located within ten minutes' walk of Pennsylvania R. R. station; terms moderate. Address

W. W. BRADLEY,
85 Malvern St., Newark, N. J.

FACTORY ROOMS WITH POWER.

Three large halls each 50 x 225. Two halls 7000 square feet each. Steam power and heat. City water, gas, cheap freighting, easy traction, steam freight elevator.

SHETHAR FACTORY, Elm Street, Yonkers, N. Y. Apply on premises, or to

T. ASTLEY ATKINS,
140 Nassau St., N. Y. City.

FACTORY

FOR - SALE - CHEAP.

In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft x 100 ft., with 30 H.-P. Engine and Boiler and 40 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

TOWNSEND WANDELL,
51 Chambers St., New York City.

WANTED.

Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

GAYNOR & MITCHELL MFG. CO.,
Bridgeport, Conn

RECEIVER'S SALE

of the

Principio Furnace Property

8500

ACRES OF LAND,

With extensive improvements, in Cecil County, and near Baltimore City, Maryland, and in New Castle County, Delaware.

Under a decree of the Circuit Court for Cecil County, Maryland, the undersigned, Receiver of The George P. Whitaker Company, will offer at public sale at the Court House in Elkton, Maryland, on Tuesday, May 24, 1892 at 11 A.M., all the

REAL ESTATE

of The George P. Whitaker Company in Cecil County, and near Baltimore City, Maryland, with improvements thereon, and about 8050 acres of land in Cecil County, embracing two fine farms of 400 acres, the balance well set in good chestnut and oak timber.

The improvements are one new modern Charcoal Blast Furnace, 10 x 16 feet, with all the necessary attachments and appurtenances; also one Hillside Charcoal Blast Furnace of old style.

Also a new and complete Charcoal Bloomery of twelve fires, with all the necessary appliances and appurtenances, in first-class condition, and now in operation.

The property is on lines of both the Baltimore & Ohio and the Philadelphia, Wilmington & Baltimore Railroads, with connection by switch to the latter road, and of easy access to the former. It has a first-class and complete plant known as Principio Furnace, long the seat of iron productions and widely known for the superior quality of its production.

Also 210 acres of land lying near the city limits of Baltimore, on line of old Annapolis road, underlaid with the celebrated Spilsmore Hone ore, widely known for its superior quality of Charcoal car wheels.

There are no liens or incumbrances on the property. Terms easy. The attention of capitalists is invited to this sale. For further particulars apply to John S. Wirt, Receiver of the George P. Whitaker Company, Elkton, Maryland.

At the same time and place and upon the same terms will be sold 282½ acres of Iron Ore property, known as "Iron Hill," situated in New Castle County, Delaware, and near the village of Newark, Delaware, and convenient to the railroad station of that name on the Philadelphia, Wilmington & Baltimore Railroad. This property has for many years been worked as an iron ore mine, and is underlaid with an almost inexhaustible supply of good Hematite iron ore.

JOHN S. WIRT,
Trustee.

FOR SALE.

STANHOPE FURNACE, with 138 acres of farm land, houses, &c. A large creek of pure water runs through the place. On line of S. & T. R. R. three miles from Pinegrove, Pa. For further particulars, address

F. L. COOCH,
BESSIE C. FOX,
Administrators.

Pottsville, Pa.

WANTED.

About 200 feet 5 and 6 inch good second-hand shafting. Address

THE CINCINNATI BARBED WIRE FENCE CO.,
Cincinnati, Ohio.

Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

MAHONING FOUNDRY AND MACHINE SHOP,
Danville, Pennsylvania.

For Exchange

STRAP .·. HINGE .·. MACHINERY.

The Ripley Hinge Works' entire outfit as operated here, for **Stock** in similar enterprise, or other valuable consideration. Address

ANDREW KING,
Ripley, Ohio.

Wheel, Axle and Iron Manufacturers and Capitalists.

Your attention is called to the following.

Two very valuable patents touching wheel and axle manufacturers and the iron trade are now offered for sale. One is an improvement in axle arms consisting of four concave depressions so arranged in the arm that they lessen friction and automatically lubricate it (the arm). The other is one of the most valuable patents ever issued. It gives to the owner a monopoly over a certain branch of business that has not been equaled in this century. This patent consists of a hub made from malleable iron, steel or other suitable metal, so made that in connection with an axle arm of suitable dimensions, &c., it does away with the projecting hubs of wheels that are now so common and annoying. It is no idle fancy to think and say that when this hub is introduced all others will disappear. Wheels made with this hub will be the nearest approach to perfection ever made in that line. To secure control of this patent is to secure a fortune. These patents will be disposed of singly or together, they will be sold outright or stock taken in a company organized for their manufacture. For further particulars address

PETER McMENAMIN,
273 Fifth St., Jersey City, N. J.

FOR SALE CHEAP.

1 Return Tubular Boiler, 14 ft. 6 in x 4 ft. 6 in. 44 3½ in Tubes.
1 Vertical Boiler, 9 ft. 6 in. high x 4 ft. 6 in diameter. 150 2 in. tubes.
1 Vertical Boiler, 5 ft. high, 3 ft. diameter.
3 Cylinder Boilers, 46 ft. x 40 in. diameter.
2 Cylinder Boilers, 30 ft. x 36 in. diameter.
3 Boiler Stacks, 48 ft. x 24 in. diameter.
1 Double 8 x 10 Hoisting Engine.
1 No. 3 Baker Blower (good as new).
2 6 ft. Copper Vacuum Pans.
1 Springfield Automatic Knife Grinder.
1 8 ton and one 2 ton Jib Cranes.
1 Duplex Worthington Hydraulic Pump.
1 Flooring Machine. Good order.
1 26 in. Planer for Woodworking.
1 Large Resaw.

J. H. McCLURE & SON.
202 Walnut Place, Philadelphia.

FOR SALE.

All the patterns and drawings formerly belonging to the Philadelphia Hydraulic Works, including a great variety of patterns for steam and power pumps, boring mills, drill presses, steam hammers, and steam engines, will be sold at a great sacrifice. Address

E. W. DWIGHT,
407 Library Street, Philadelphia.

FOR SALE.

Twenty-five shares of the Bristol Iron and Steel Co.'s stock, at a discount. Address

"STOCK,"
P. O. Box 1086, Philadelphia.

CAPITAL WANTED.

To manufacture and introduce a **WIRE NAIL MACHINE** of superior merit as regards construction and small cost of operation and repair. Fully covered by U. S. Patents. Three sizes of machine in successful use, capacity of production exceeding any machine now in operation. Will sell patent and machines outright or go into a stock company to manufacture machines for sale or use. Address

"WIRE NAILS,"
P. O. Box 1086, Philadelphia.

WANTED.

To communicate with the owners of a modern Coke Blast Furnace, who are open to a proposition to move it to the best location in the country.

"COKE BLAST FURNACE,"

office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED

An Automatic Engine (second-hand) in first-class order, of 100 or 125 H.-P. Send complete description and price. Address

"ENGINE,"

office of *The Iron Age*, 59 Dearborn St., Chicago.

FOR SALE,

Over fifty tracts of well located Iron Lands on the Mesaba Range in Minnesota. Address

G. J. HIBBARD or SOL. MEYER,
Charleston, Illinois.

AUCTION NOTICE.

HAYDOCK & BISSELL,

Wholesale Auctioneers.

Tuesday, May 10, at 10 o'clock A. M.

—AT—

Nos. 12 Murray St. and 15 Park Place,

BY ORDER OF THE

LALANCE & GROSJEAN MFG. CO.

On Ninety Days Time for Approved Paper.

Large Special and Peremptory Trade Sale

OF AGATE WARE—Seconds

Including a large assortment of Tea and Coffee Pots Lipped Sauce and Convex Pans and Pots. Preserving Kettles, Wash Basins, Dish Pans, Pails, Tea Kettles, Straight Pots, &c., &c. Also a large line of **STAMPED TINNED AND BLUE AND WHITE WARE.** Tea, Table and Basting Spoons, Fry Pans, &c., &c.

The above sale will be worthy the attention of the trade.

Thursday, May 12, At 10 O'clock,

Large Special and Peremptory Trade Sale

OF TABLE AND POCKET CUTLERY, CARVERS, PLATED FLAT WARE, &c., &c.

This will be ***our last Cutlery*** Sale ***until next August,*** and will include a large and ***desirable*** assortment of goods ***direct*** from the ***Manufacturers and Importers,*** comprising about ***1000 Lots*** Table Knives and Forks and Knives only, Carvers, Silver Plated Flat Ware, Extra and Triple Plate, Cast Steel Nickel Plated Scissors and Shears, ***WM. ROGERS' Triple Plated*** Medium Knives, Fruit Knives and Medium Forks, &c., &c. Also Fine Pocket Knives, Fine ***Hollow Ground Razors,*** Butcher Knives, &c., &c.

At 12 O'CLOCK, an **Invoice** of **FINE RATTAN and PLUSH CHAIRS and ROCKERS.**

The entire Catalogue will be sold without reserve, and will be worthy the attention of the trade.

FOR SALE.

RARE OPPORTUNITY FOR THE RIGHT MAN.

Owing to the death of Edward Heath, Treasurer of the Malden Hardware Co., Malden, Mass., a city of 25,000 inhabitants, situated 4 miles from Boston, the stock, fixtures, tools and teams of the company are offered for sale Stock will invoice about $10,000 Must be sold on or before June 1, 1892, to close estate Apply to

CHARLES HEATH, President,

on the premises.

FOR SALE.

The stock and fixtures amounting to about $5000 of a first-class hardware store, nicely located in a manufacturing town of 8,000 population. Best of private reasons for selling. We heartily recommend this stand to anyone desirous of starting in the retail hardware business. The town is within 25 miles of Philadelphia and growing in importance.

BIDDLE HARDWARE Co.,
507 Commerce St., Philadelphia.

FOR SALE.

Hardware and house-furnishing business on leading avenue in New York City. First-class neighborhood, growing yearly. Jobbing business can be added. Stock $75.0 Address "EMPIRE," Box 45, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

The Baxter Stove Works of Birmingham, Ala. Plant in excellent condition; long established business; annual sales $100,000; terms easy; rare opportunity. For particulars address

AMERICAN NATIONAL BANK,
Birmingham, Ala.

Business Chance.

Good complete Retail Hardware Stock for sale in one of the best localities in State of Connecticut Value of stock $15,000 to $20 000. Possession 1st May. Inquire "CONNECTICUT," Box 21, office of *The Iron Age*, 96-102 Reade St., New York.

BICYCLES.

A manufacturing company with one of the best equipped shops in New England is prepared to accept contract for the manufacture of 1000 or more Safety Bicycles for the season of 1893. Have had experience in this line and are prepared to make satisfactory arrangement with right parties desirous of putting a bicycle on the market. Address "BICYCLE 1893," office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

Fifty-seven gross tons **OLD STEEL RAILS** fit to relay; 56 pound section, 4 inches high. Apply to

L. & R. WISTER & CO.,
257 South 4th St., Philadelphia, Pa.

FOR SALE.

An established Hardware, Stove and House-Furnishing business located in Northern Pennsylvania, occupying a building built especially for the purpose and which may also be bought or leased. Stock would inventory about $12,000 all new. Present owner retiring on account of age. Close inspection invited. Address

"NORTH PENN.,"

office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish; no trade. For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York

WANTED,

Something to Manufacture.

A New York manufacturer of Light Hardware, having greater facilities than necessary for their present line, desires to add some specialty or patented article to be finished complete from raw material if necessary. Address "H. H.," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

STOCK OF HARDWARE

And Fixtures, all new and well assorted, invoicing about $8000, or can be reduced to suit purchaser. Located in West Duluth, Minn. A splendid opportunity to buy an established business in a growing manufacturing town. Sales last year, $40,000.

CHAPIN-WELLS HARDWARE CO.,
Duluth, Minn.

WANTED,

Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired "A. B.,"

office of *The Iron Age*, 146 Franklin St., Boston, Mass

IF FROM ANY CAUSE

You have goods to offer at specially low figures for **SPOT CASH,** that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of **SPECIAL LOTS,**
75 Chambers St., New York

To Manufacturers

—DESIRING—

EXPORT TRADE.

Established Manufacturers' Agent, well acquainted with the Export Trade, desires agency of staple or special lines of Hardware, Agricultural Goods, &c.

Address "EXPORT TRADE,"

Box 21, office of *The Iron Age*, 96-102 Reade St., New York.

Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

LAMBERSON'S

Old Reliable

HARDWARE PRICE BOOKS.

Send for new Illustrated Circular.

BUELL LAMBERSON,
PORTLAND, OREGON.

TIRE UPSETTER.

LINE MOVEMENT DOES THE WORK.

SIMPLE. DURABLE. CHEAP.

Send for Price.

The method of operating this machine is simple. One downward motion of the lever throws the shoe cam on the tire and upsets the tire ¼ inch. The raising of the lever half way and making another downward motion upsets the tire another ¼ inch, which operation may be repeated as often as necessary. The back notch on the lever is intended for use on heavy tires and will, it is stated, do the work as easily as on light tires.

BUTTS & ORDWAY,

500 ATLANTIC AVENUE,

BOSTON, - - MASS.

GEARS

Send for new catalogue just out, containing much valuable information about Gears and **Gear Cutting.**

Boston Gear Works,
27 Hartford St., Boston, Mass.

WALTER M. STEIN,

METALLURGICAL ENGINEER,

325 Walnut Street, Philadelphia.

Coal Washing and Separating Plants. Improved (Belgian) Coke Ovens, with or without Saving of By-Products. Blast Furnace Plants

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

A MAN to sell Differential Pulley Blocks to machinists and bridge-builders; must have a practical knowledge of mechanics. Address "PULLEYS," office of *The Iron Age* 59 Dearborn St, Chicago.

SALESMAN to solicit orders for Babbitt Metals and Brass Castings in Philadelphia and vicinity. Address, giving reference, experience and terms, "SALESMAN," office of *The Iron Age*, 220 S. Fourth Street, Philadelphia.

A STENOGRAPHER and Typewriter; one having experience with machinery or mechanical engineering firm preferred. THE GOULDS MFG. CO., Seneca Falls, N. Y.

IN EASTERN PENNSYLVANIA, a man who can run gas furnaces and rolling mills making iron shapes, such as angles, flats, rounds and irregular shapes, both steel and iron. State wages and experience fully. Address "EASTERN PENNSYLVANIA," Box 55, office of *The Iron Age*, 96-102 Reade Street, New York City.

PUDDLE BOSS, understanding how to make high test iron. Also Roher to take charge of 12 in. x 8 in. mills. Address "HIGH TEST," Box 55, office of *The Iron Age*, 96-102 Reade St., New York.

A COMPETENT first-class Salesman with an established trade, to sell builders' hardware and factory supplies in New York City and Brooklyn. Highest references required. Address "HARDWARE," P. O. Box No. 133, Station W, Brooklyn.

EXPERIENCED and competent Chemist for blast furnace in Virginia; in making application please give reference and state experience and amount of salary required. Address "COMPETENT CHEMIST," office of *The Iron Age*, 96-102 Reade St., New York.

TRAVELING SALESMEN who have had experience in the hot and cold roll steel business; state age, whether married or single, where recently employed and salary expected for first year. Address "HOT AND COLD ROLLED STEEL," Box 414 office of *The Iron Age*, 96-102 Reade St., New York.

SALESMEN to carry Shimer Patented Hollow Handle Post Spade as side line on commission. L. & R. WISTER & CO., Philadelphia, Pa.

SITUATIONS WANTED

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

BOOKKEEPER A1, fifteen years' experience in large companies, desires position; can furnish very best city references. Address "A.," care Hardware Board of Trade, 4 Warren St, N. Y.

BY AN EXPERIENCED and practical man, position as manager or assistant of open-hearth steel plant, making all grades of steel; 11 years with one firm. Address "MANAGER," office of *The Iron Age*, Room 510, Hamilton building, Pittsburgh.

BY A THOROUGHLY competent chemist, at a blast furnace or steel works; five years' experience in laboratory and technical education; can calculate blast furnace burdens and understand practical workings of a furnace; can furnish all references necessary. Address "LABORATORY," Box 55, office of *The Iron Age*, 96-102 Reade St., New York.

AS FOREMAN of malleable or light gray foundry, thoroughly understands making iron from cupola or furnace; also understands annealing and molding; good references. Address "MALL," office of *The Iron Age*, 96-102 Reade St., New York.

BY MECHANICAL ENGINEER who desires to go into practical work, as assistant superintendent of a steel company or as constructing engineer; has had experience as head draftsman with best men in the country and can obtain recommendations from same; also experience in construction work of heavy machinery. Address "A. B. C.," office of *The Iron Age*, 59 Dearborn St., Chicago.

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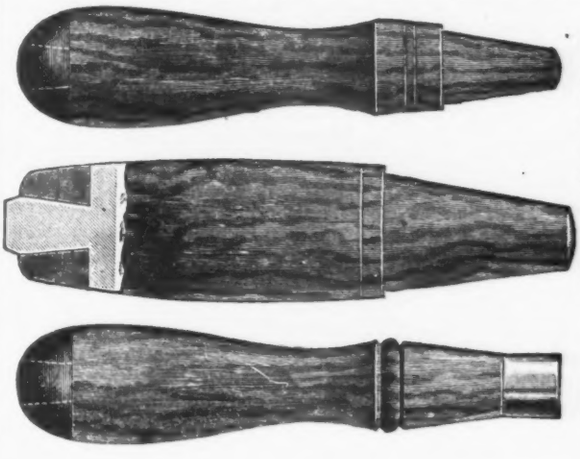

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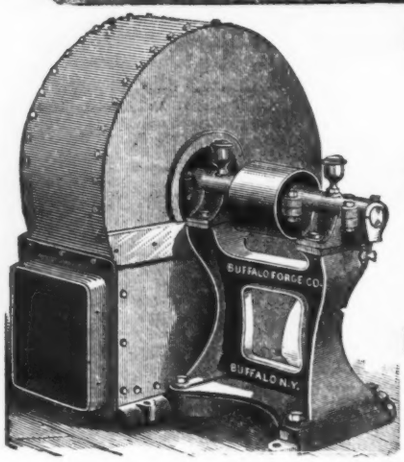

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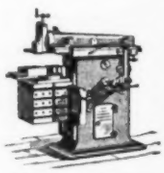

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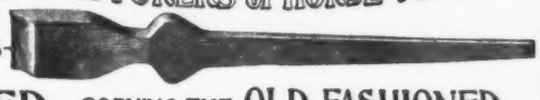

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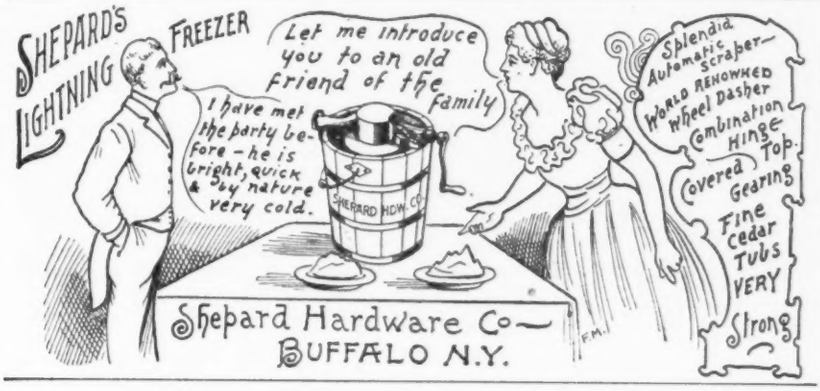

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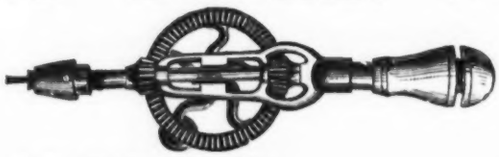

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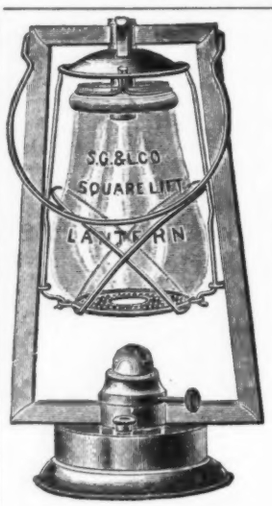

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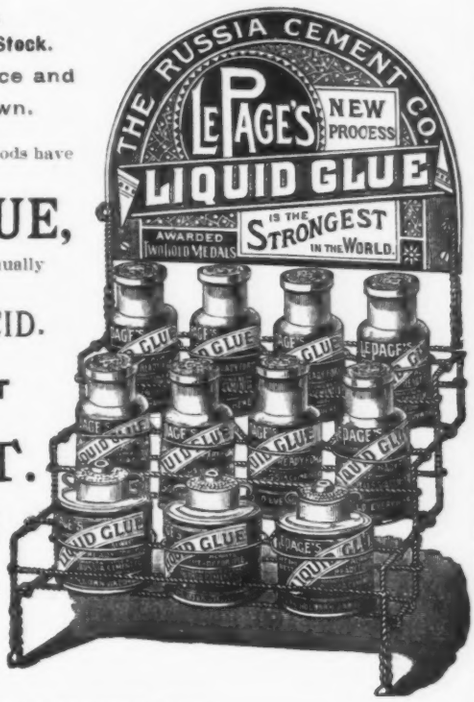

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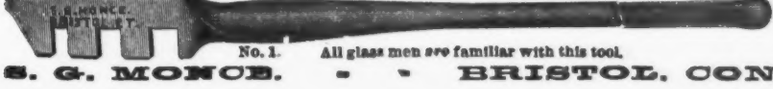

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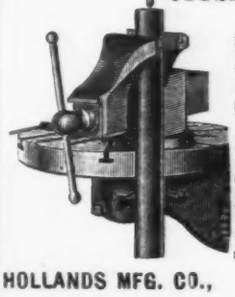

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Fig. 120. Fig. 70.

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Fig. 209.

Fig. 381.

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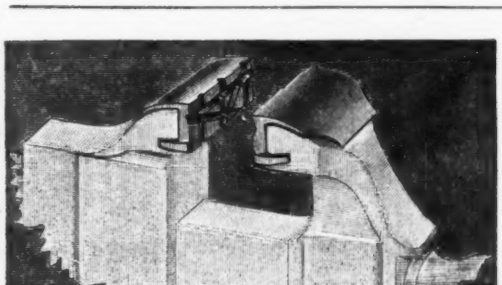

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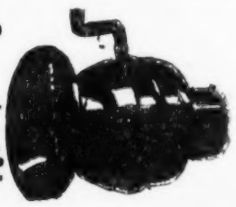

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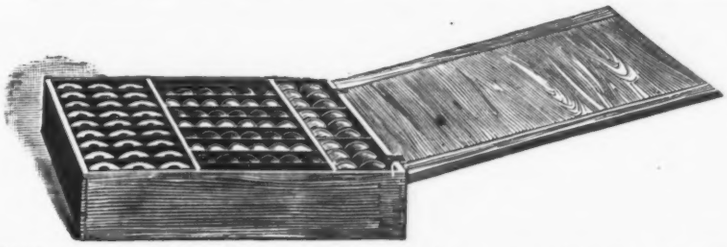

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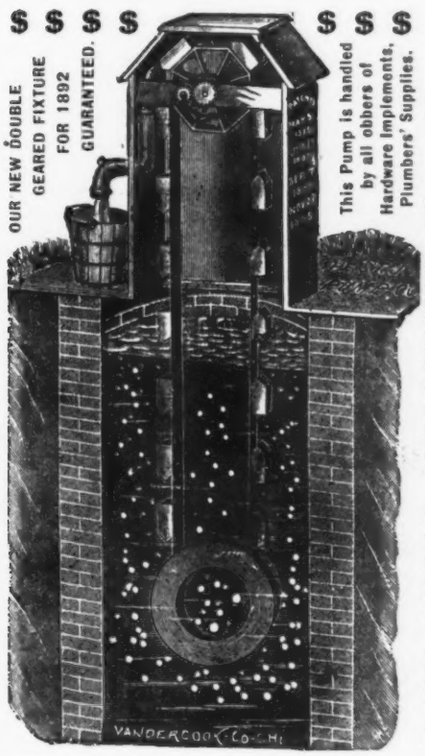

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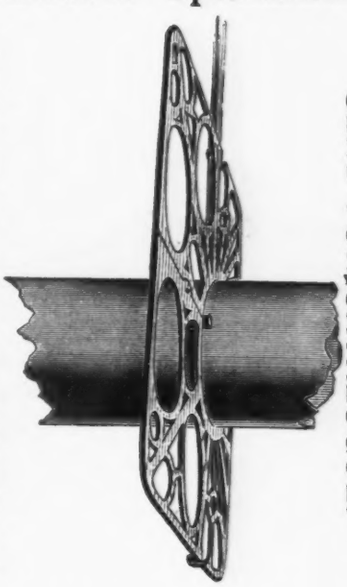

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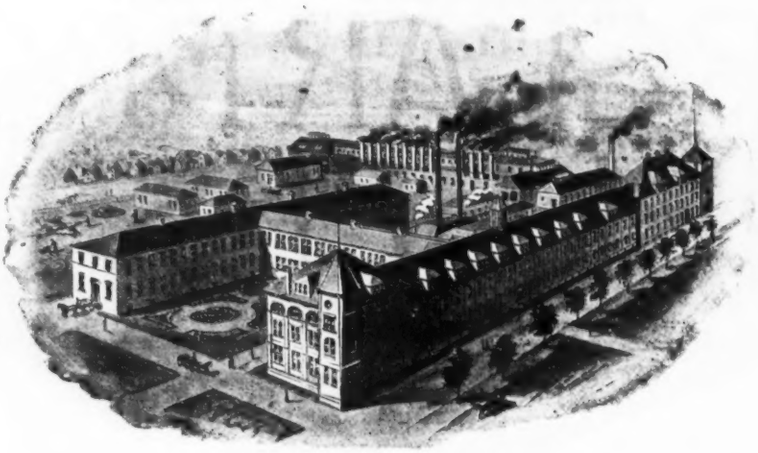

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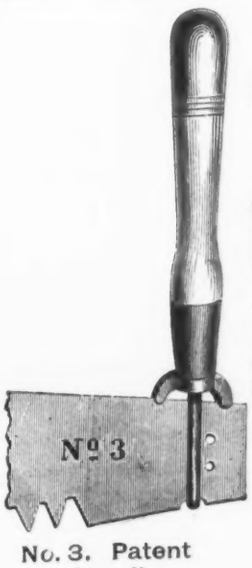

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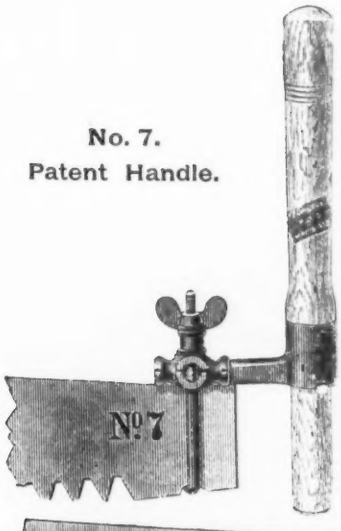

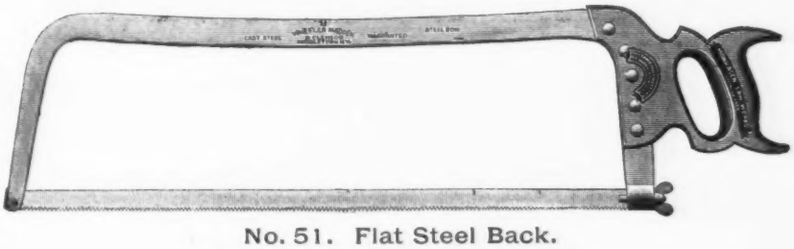

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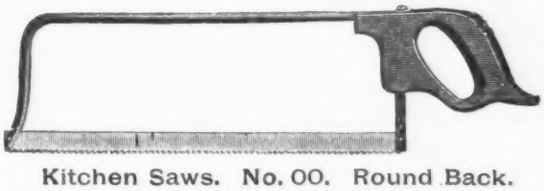
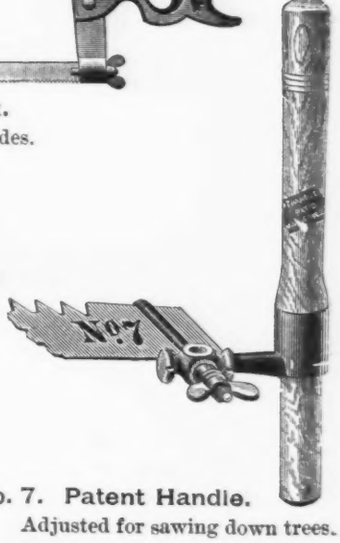
With Blued Clock Spring Steel Blades.



Kitchen Saws. No. 00. Round Back.



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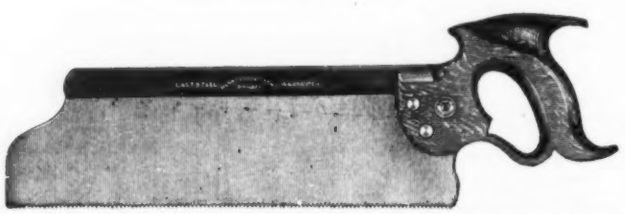
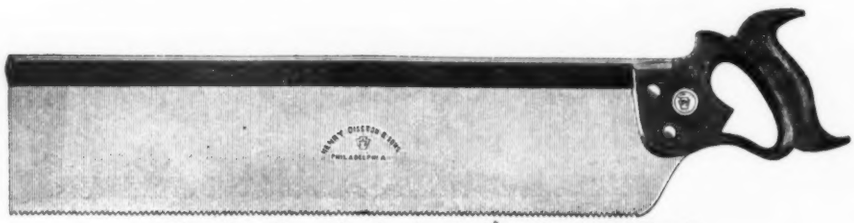
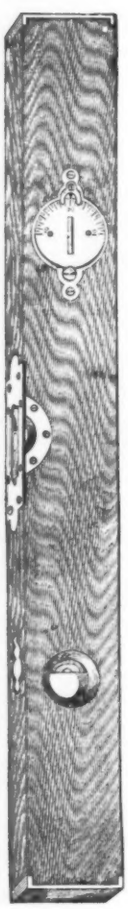


No. 9 Improved Back Saw. Apple Handle with Thumb Piece.



Mitre Box Saw No. 4. Apple Handle, Steel Back.



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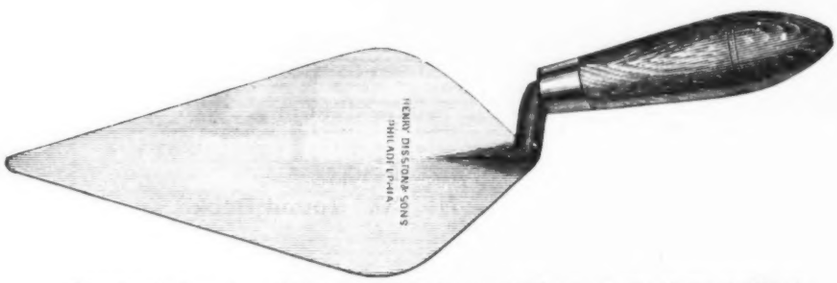

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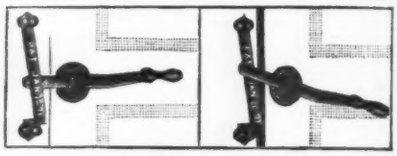

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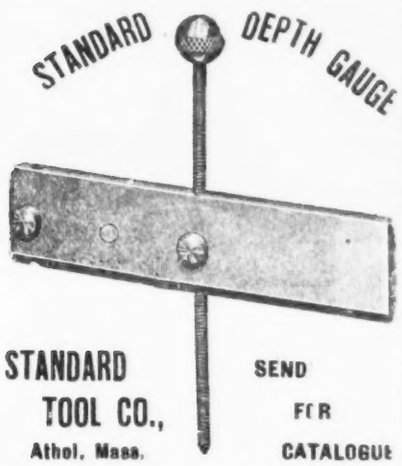

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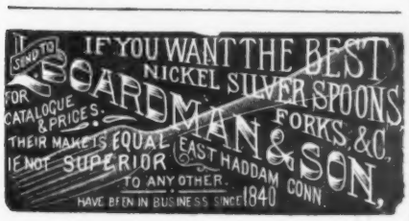

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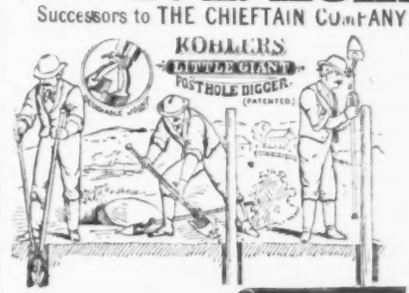

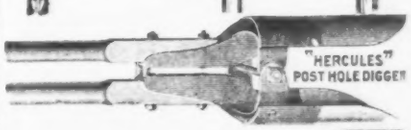

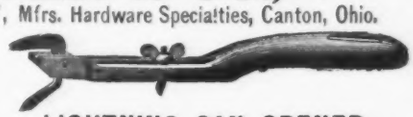

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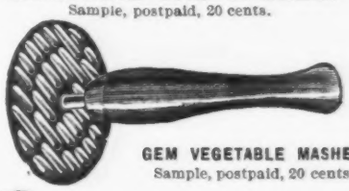

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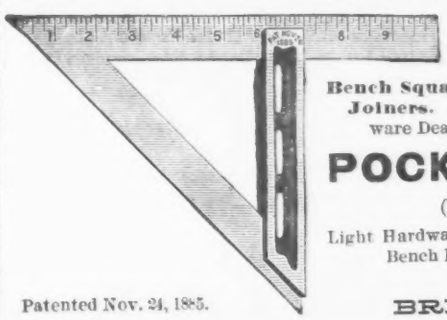

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Bench Square, Indispensable to Carpenters and Joiners. Always ready for use. For Sale by Hardware Dealers or sent, prepaid, by mail for $1.00.

POCKET CUTLERY (Brand)

(THE HATCH CUTLERY CO.)

Light Hardware, Small Tools, Dies, Novelties, "Power" Bench Drills, Composition Metal, Bronze and Brass Castings.

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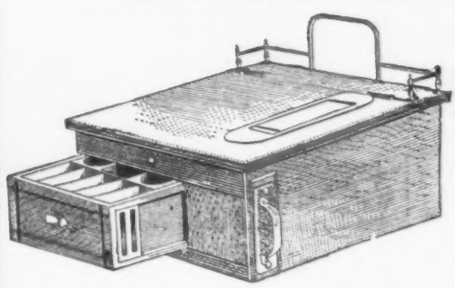

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The John Lighton Machine Co.,

MANUFACTURERS OF

The Lighton Automatic (Nickel-in-Slot) Lifting and Grip Machines,

Office, 512 East Water St., Factory, cor. Grape and Water Sts., Syracuse, N.Y., U.S.A.

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John Wilson's Butchers' Knives and Steels,

Skinning, Sticking, Farriers' & Shoe Knives,

Have established and maintained their reputation, for superiority, against all Competitors, from

THE YEAR SEVENTEEN HUNDRED & FIFTY,

and are still in increasing demand. As in the past, it is the unalterable

DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.

WORKS: SYCAMORE STREET, SHEFFIELD, ENGLAND.

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—MANUFACTURERS OF—

Pocket and Table Cutlery, Scissors, Razors, Erasers, &c., &c.

These goods have fully maintained their reputation as the best cutlery in the world for over

ONE HUNDRED AND FIFTY YEARS.

Any Infringements of our Name and Corporate Mark will be promptly prosecuted.

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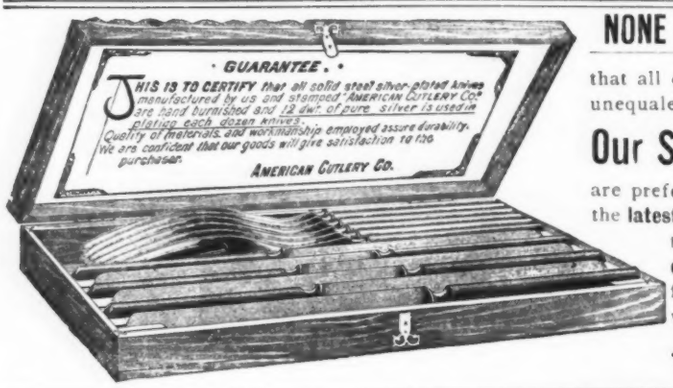

NONE ARE SO BLIND AS THOSE WHO WILL NOT SEE!

that all our *Cutlery* is made from the best quality of steel and unequaled in style and finish.

Our SILVER PLATED KNIVES AND FORKS

are preferred to all others by the "F F's of A," because they are the **latest "FAD"**; the **best shape**; the **best weight**; the **best plated** the **best edged**; the **most durable. The Dealer who don't carry them in stock is the BLIND MAN.** Send us your order for fifty dozen sets, put up in hard wood carved boxes velvet lined and very salable.

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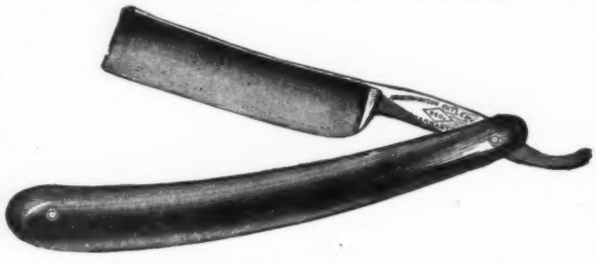

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Unexcelled.

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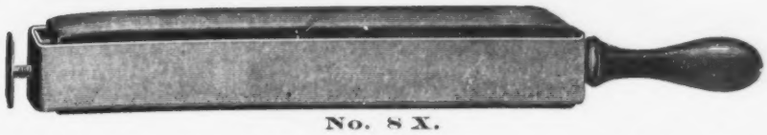

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The TORREY RAZOR STROPS are known the world over as the standard for excellence in setting a fine edge. We manufacture and carry in stock more than 150 styles.

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Shank, Socket Firmer and Socket Framing Chisels.

PLANE IRONS.

CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark also, "Riverlin Works."

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Wholesale Hardware.

Office, 35 Barclay St. Warehouse, 40 Park Place, New York.

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"Perfection" and "New Easy" Lawn Mowers,
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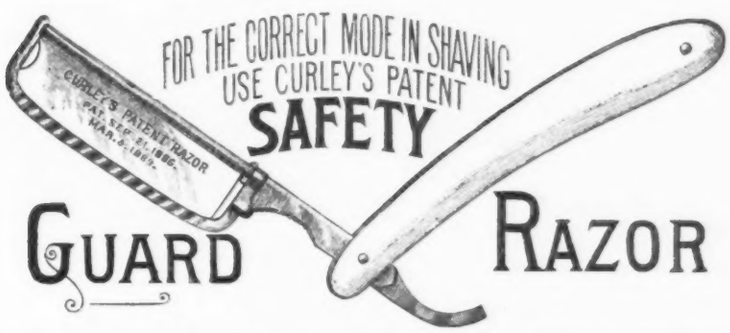

This improvement permits correct shaving; therefore no irritation is caused and the most inexperienced can shave with perfect safety.

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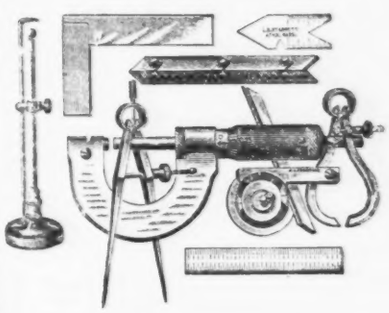
STARRETT'S FINE

TOOLS



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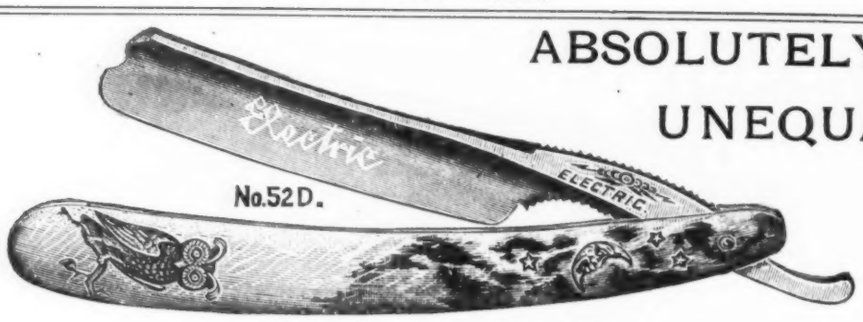

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WE CALL ESPECIAL ATTENTION TO OUR COMPLETE LINE OF FINE GOODS IN RUBBER, CELLULOID, BONE, IVORY, &c.

—OUR CLAIMS ARE:—

EXTRA QUALITY OF STEEL IN BLADES. SUPERIORITY IN GRINDING AND FINISH. STRENGTH AND DURABILITY.

Made in Plain Steel or Heavily Plated Blades, Hand Burnished.

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FOR SALE BY ALL DEALERS IN HARDWARE, CUTLERY AND FANCY GOODS.

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TABLE KNIVES and FORKS in Rubber, Celluloid, Bone, Ebony, Cocobolo and Iron from the finest grade to the cheapest.

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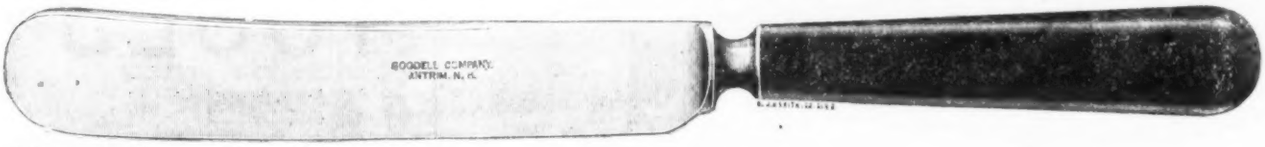

STEELS. We make steels to match all patterns of carvers, also Butcher Steels, which are not excelled.

BUTCHER KNIVES. Cocobolo and Beech handle, all sizes, various shapes. It is entirely unnecessary to pay exorbitant prices for imported knives. Ours are sold at fair prices and are warranted equal in quality to any in the world.

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—We Want Your Trade.—

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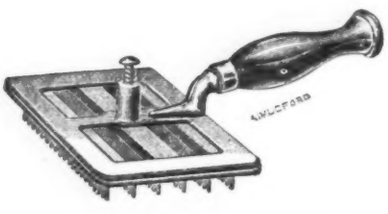

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Sole makers of the celebrated "Maud S" Self-Cleaning Curry Comb.

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Send for full Catalogue and Prices.

COOKS' KNIVES THAT WILL CUT.

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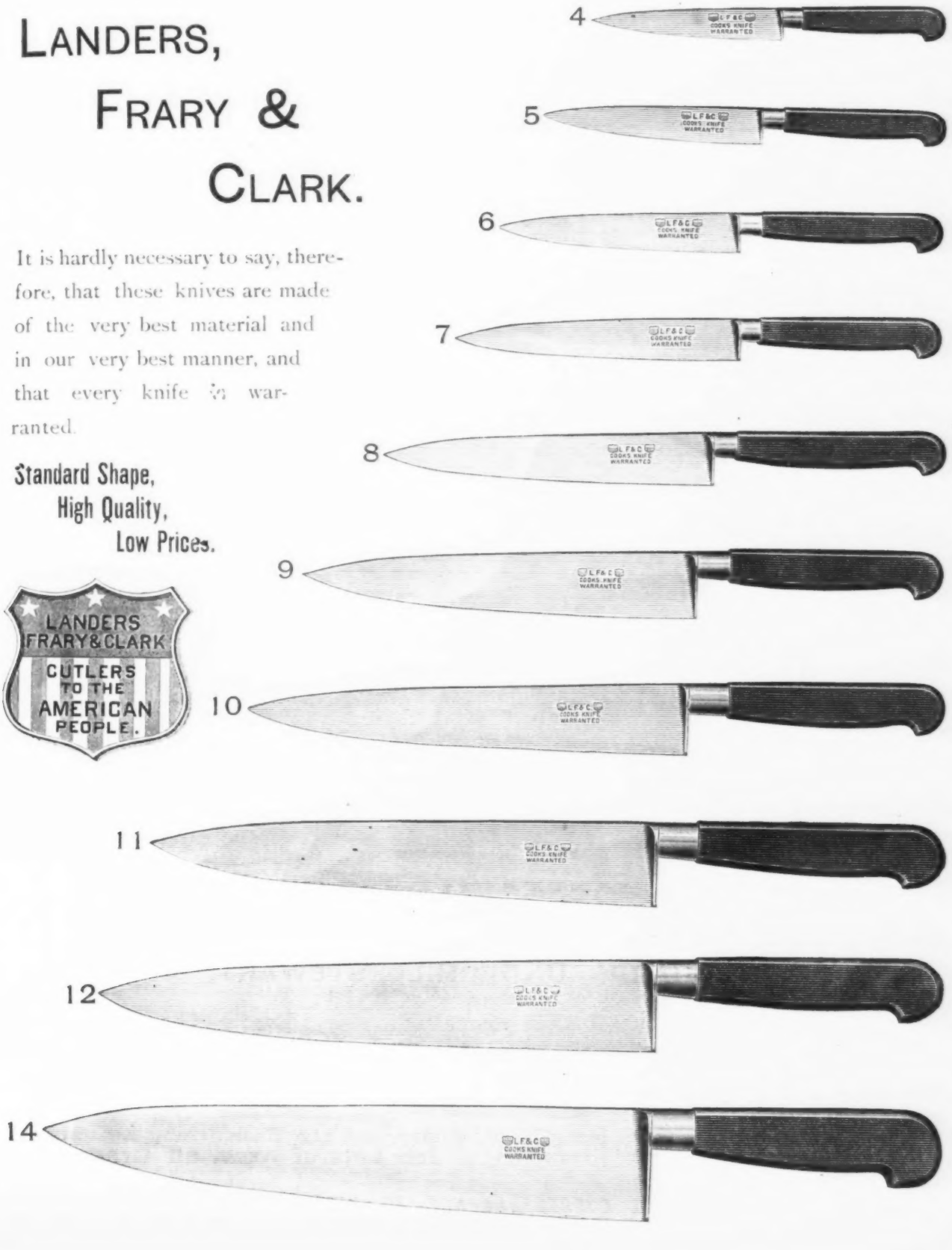
It is hardly necessary to say, therefore, that these knives are made of the very best material and in our very best manner, and that every knife is warranted.

Standard Shape,
High Quality,
Low Prices.

LANDERS FRARY & CLARK
CUTLERS TO THE AMERICAN PEOPLE.



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AXES, HATCHETS, BROAD AXES and ADZES, also "Blood's" Champion and "Hubbard's" Diamond Blade SCYTHES.

Grass Hooks, Corn Knives, Bush Hooks, Planters' Eye Hoes, Ice Axes, Ice Hatchets and Firemen's Axes, Wood Chisels, Picks, Mattocks, Brick Hammers, Box Openers, Ice Chisels, Butchers' Handled Axes, Meat Hatchets.

ALWAYS IN STOCK: Best Leading Brands of Axes and Edge Tools. Cheap Handled Axes. Medium Grade Axes. Boys' and Hunters' Axes. **Job Lots of Axes, all Grades and Patterns.**

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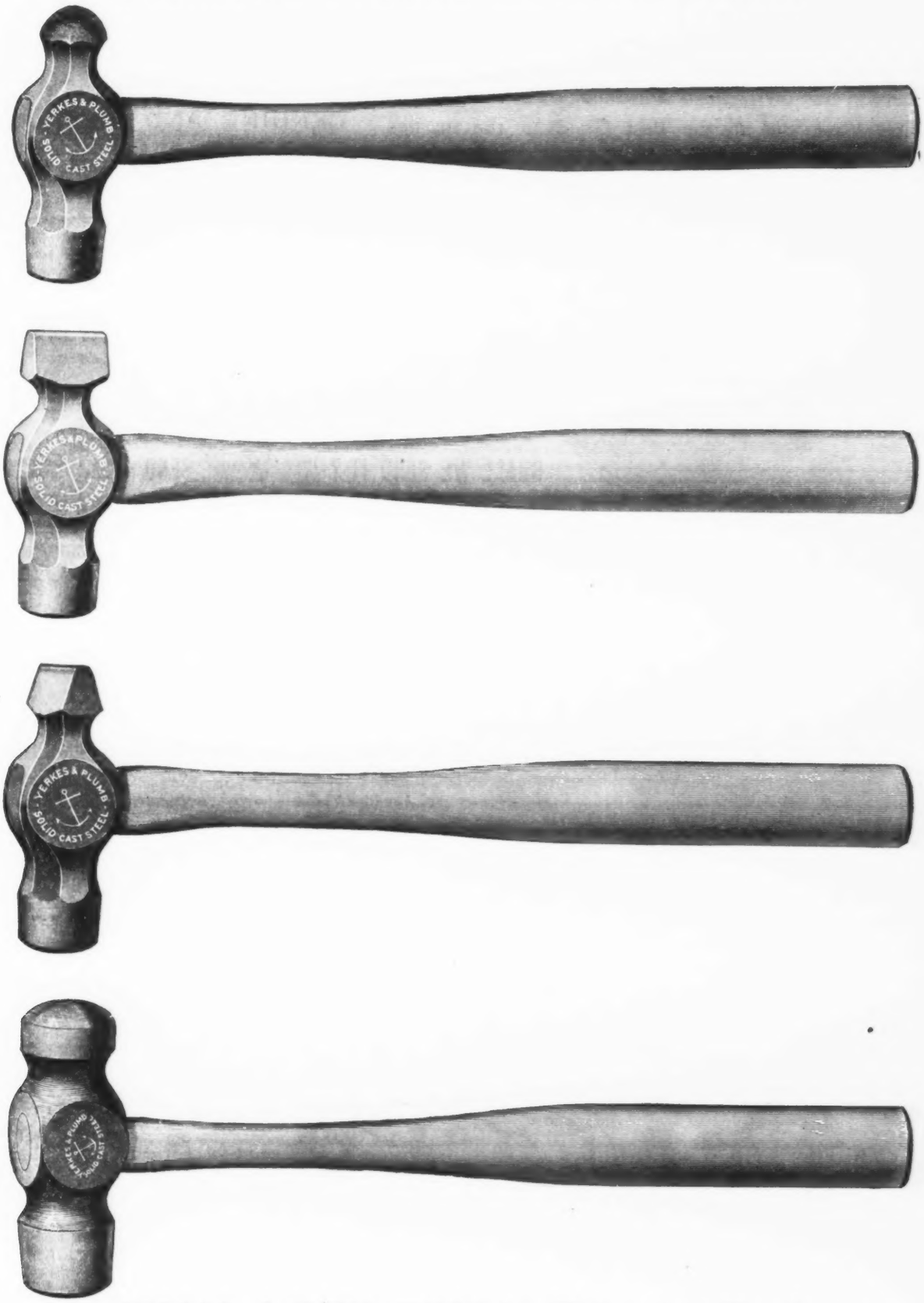

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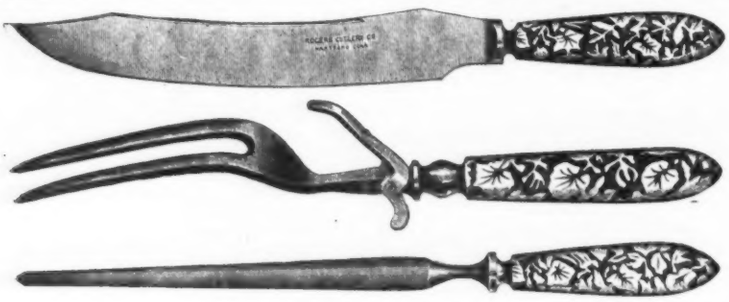

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Manufacturers of all kinds of

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Goods so Stamped are

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WE WILL SEND IT.

We have just issued a new catalogue. It illustrates all plated goods such as are used by the HARDWARE TRADE. It is a LINE OF SAMPLES in book form, the best of its kind. It will do you good service and costs you nothing.

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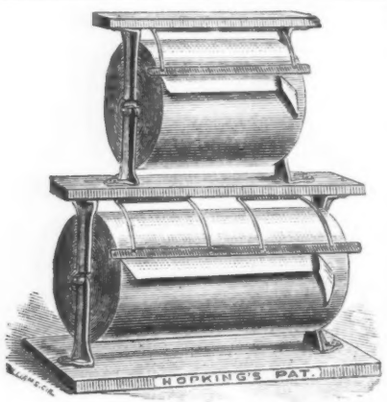

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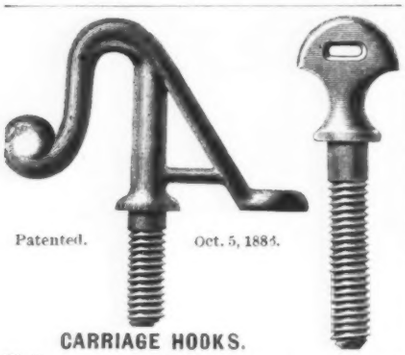

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Well proportioned, accurate size and very strong. Avoid accidents by using only the very best Shaft and Whiffletree Hooks.

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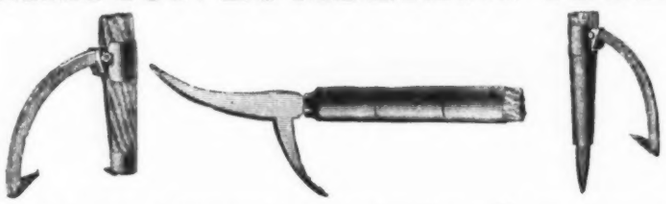

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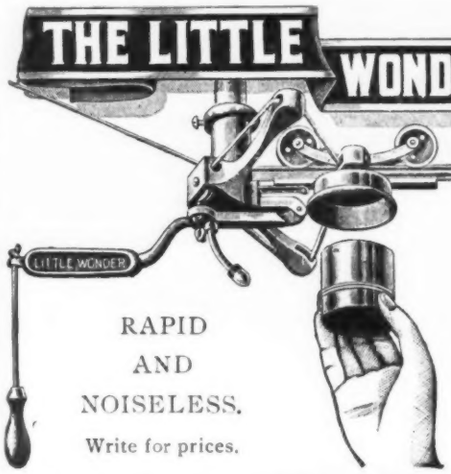

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Write for prices.

Works perfectly on CURVES AND INCLINES.

No springs, wooden cup or rubbers to get out of order.

IT NEVER FAILS.

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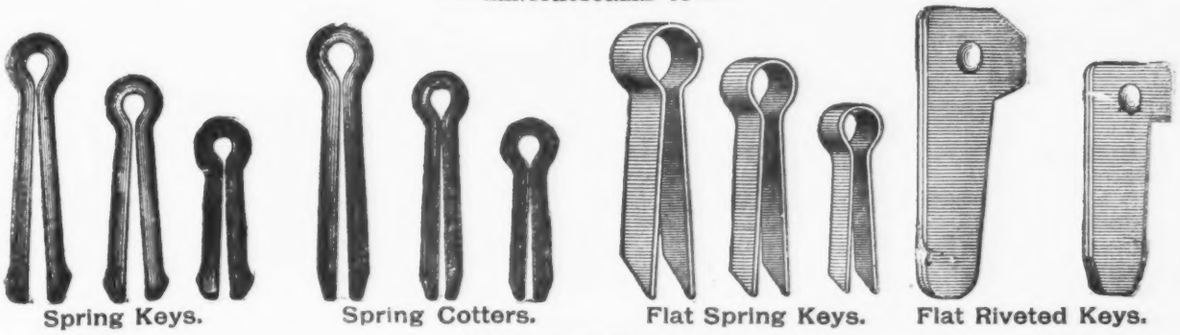

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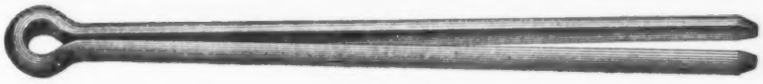

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ONE PIECE OF STEEL. 75 CENTS EACH.

Simple, Durable and most effective. Will last a lifetime. Nothing to get out of order or break. Made from best quality of tool steel and warranted. Will do the work of any other Nail Puller and more. Liberal terms to the trade.

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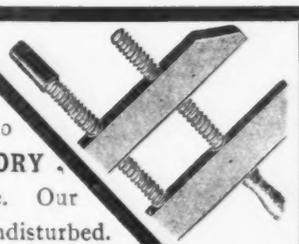

We guarantee our **HAND SCREW SPINDLES** to be made of **STRICTLY SECOND GROWTH HICKORY**, a claim which no other manufacturer can honestly make. Our **THREADS** are **SAW CUT**, leaving the grain of the wood undisturbed.

Write us for catalogue and discounts on Cabinet Makers' Case and Glue Clamps, Cabinet and Carvers' Benches, Etc.

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FRAY'S RATCHET BRACE.

Patented Dec. 25, '88, and Jan. 8, '89.

Nickel-Plated, with Cocobolo Handle, Lignum Vitae Head.

81— 8-in. sweep, $33 per doz
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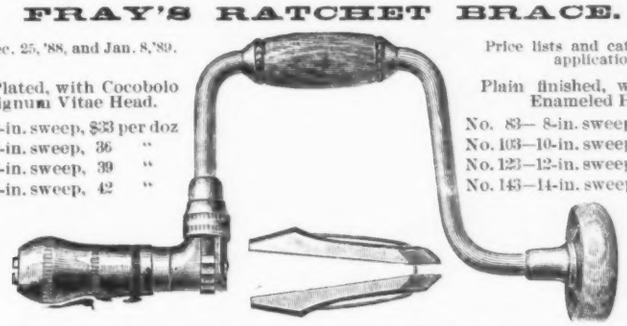
21—12-in. sweep, 39 "
41—14-in. sweep, 42 "



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Plain finished, with Black Enameled Head.

No. 83— 8-in. sweep, $18 per doz
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No. 123—12-in. sweep, 21 "
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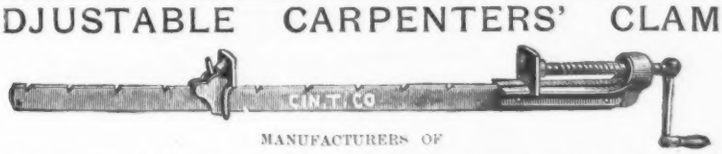
ADJUSTABLE CARPENTERS' CLAMP.



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CLIPPERS

For Horsemen and Barbers.
27 Patterns. Latest improvements.
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Bolts,	Nail Pullers,	Sledges,
Braces,	Nuts,	Strap and T Hinges,
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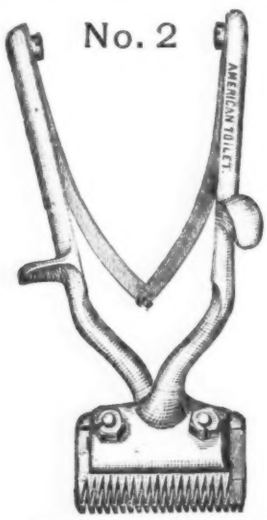

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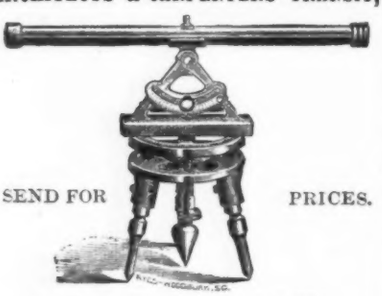

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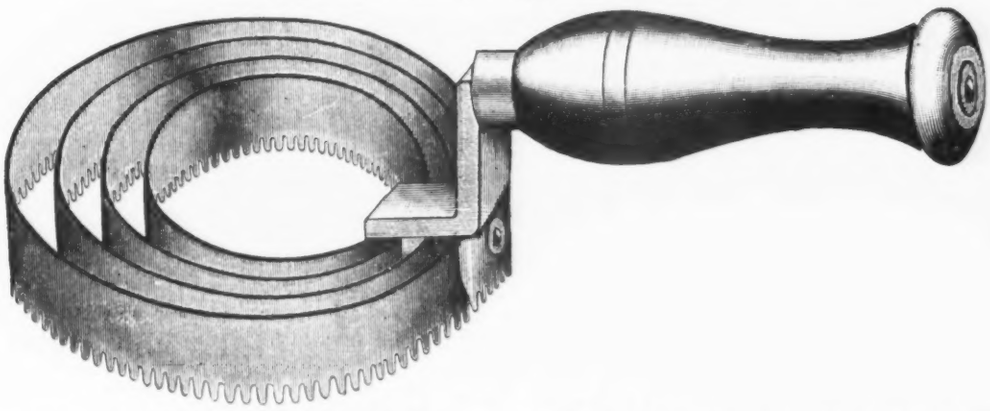

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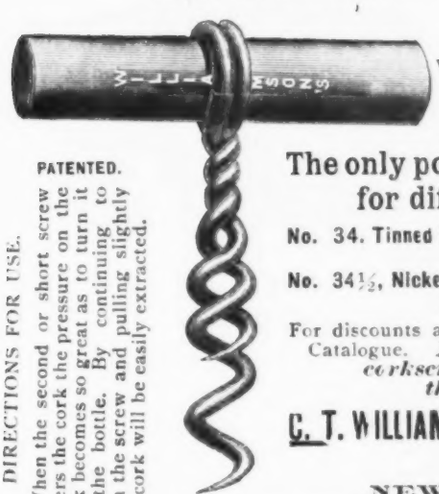

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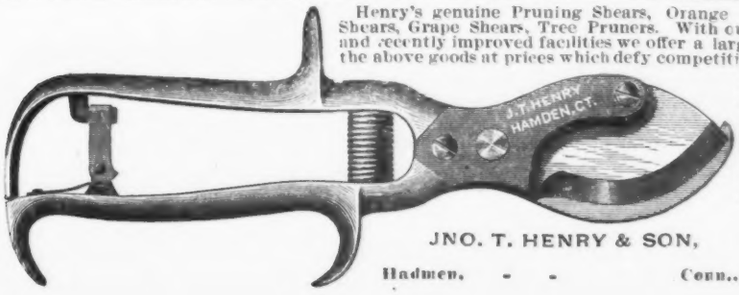

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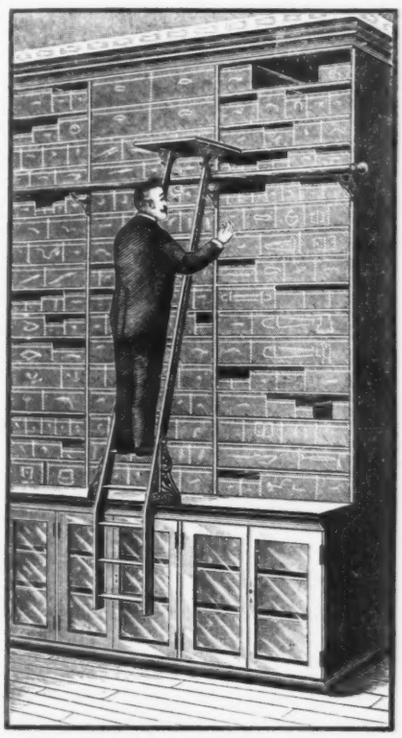

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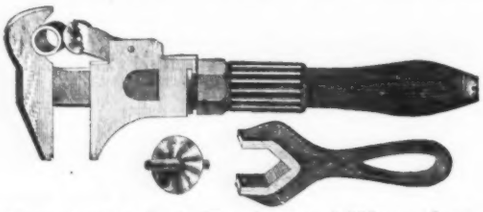

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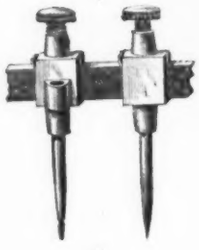

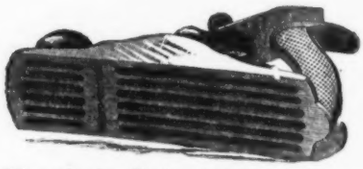

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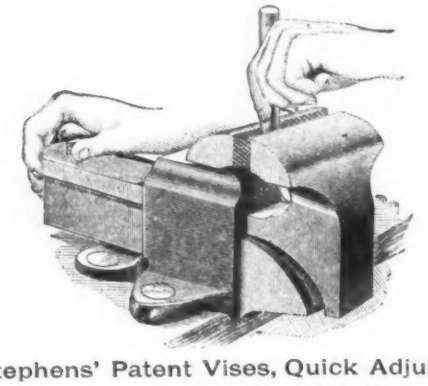

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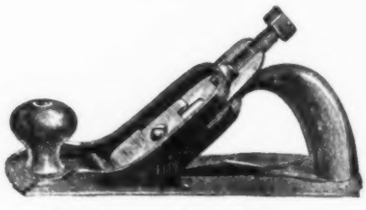

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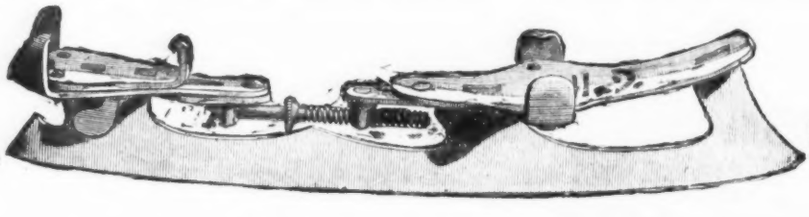

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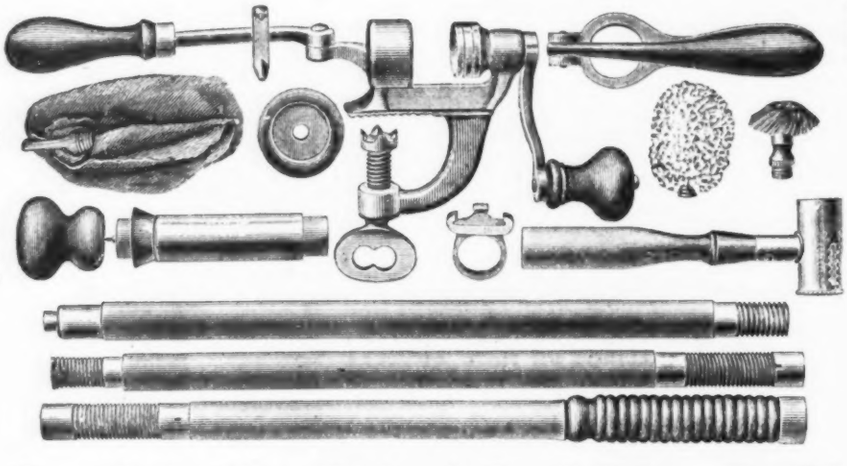

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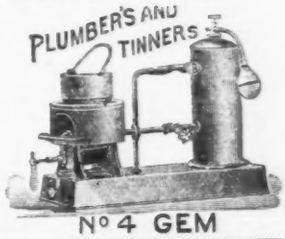

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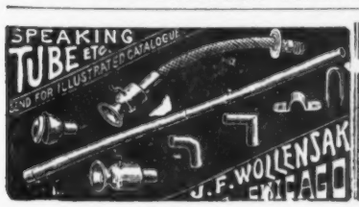

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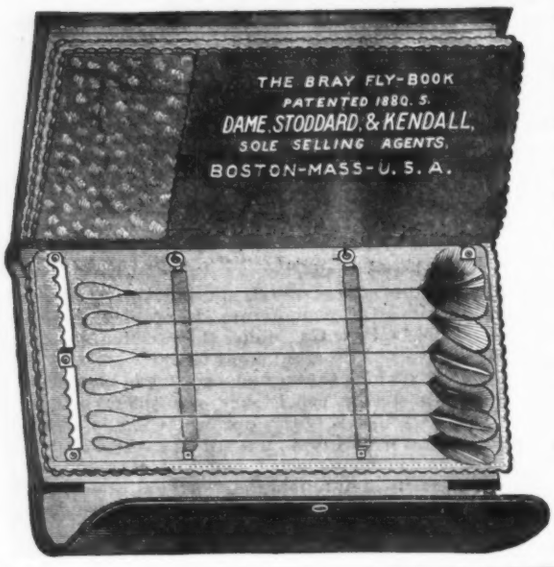

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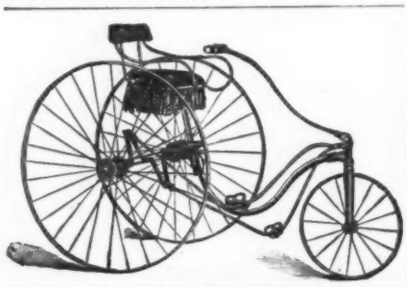

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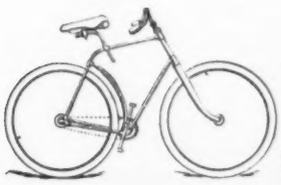

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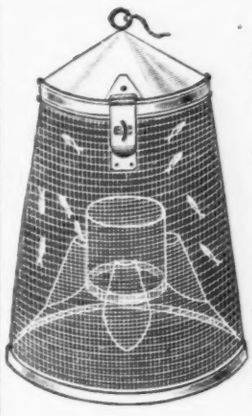

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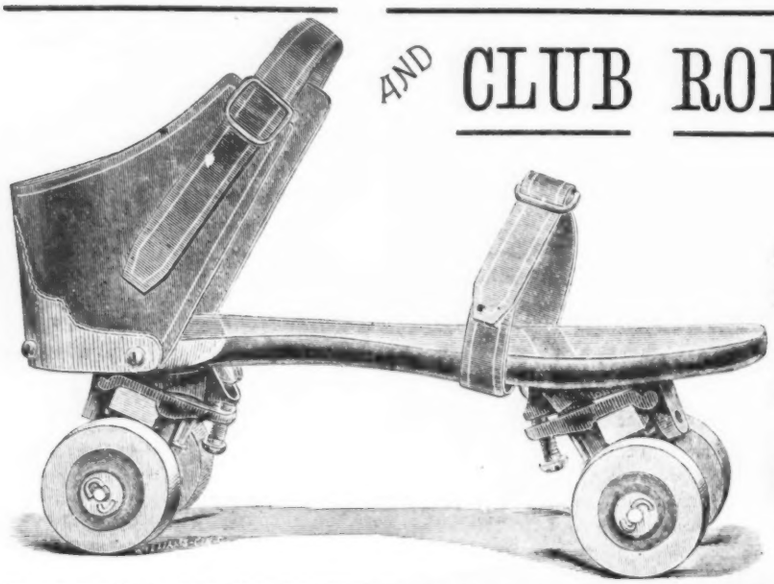

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Dog Muzzles, Horse Muzzles, Dish Covers, Bird Cages, Moss Baskets, Wire Cloth, Sieves and Sifters, Riddles and Sand Screens. Catalogue Free. Write or Wire

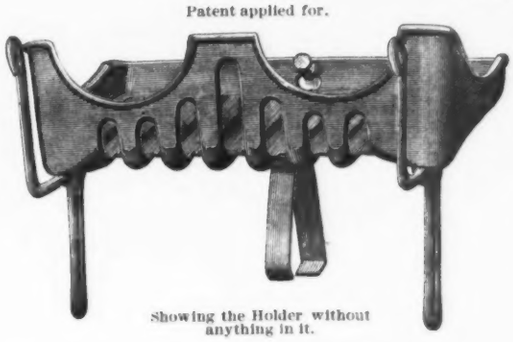
THE CINCINNATI MFG. CO., CIN., O.

THERE ARE FIFTEEN MILLION OF THE

"DIAMOND" COMBINED SOAP AND SCRUB-BRUSH HOLDERS

—WANTED.—

Patent applied for.



Showing the Holder without anything in it.

THERE are that many homes in the United States, and in every one, one or more will be wanted, as soon as they are shown. There has never before been anything which does the work of this on the market. The idea is entirely new

It is hardly necessary to refer to the fact that it will soon pay for itself many times over, as it does not take long for a cake of soap to dissolve, or the back and bristles of a brush to be loosened, when left in the water in a bucket, as is invariably done when scrubbing.

Size of Soap Holder, 5x3¼ inches. Brush Bracket on rear of Soap Holder is so made as to hold either the thickest or thinnest of brushes. Back legs are two wires doubled as shown, which clasp inside of bucket, while the inside arm of double spring, in front, firmly clasps the outside of bucket, and allows for varying thickness of same. The outside arm of spring serves as the third leg of the holder when sitting down. The little projections on each side of the spring retain the holder in proper position when hanging. The shape of the back and sides of Soap Holder is such that soap can be readily and easily grasped under all circumstances. When clasped on a bucket the front of the holder is higher than the back, thus draining all moisture which may be on the soap when placed in the Holder back into the bucket. The Brush Holder is right over the bucket, so that all water from it drips into the bucket. The wires of the Brush Holder, being single wires, pass between the rows of bristles, thus compressing none of them. The Soap Holder is made of iron, very light; the complete holder weighing less than one-half pound. **The whole forms a perfect combination, and one of the most useful household articles ever put on the market** Packed in cases containing one-half gross each.

Showing the Holder clasping top of bucket, with both soap and scrub-brush in it.

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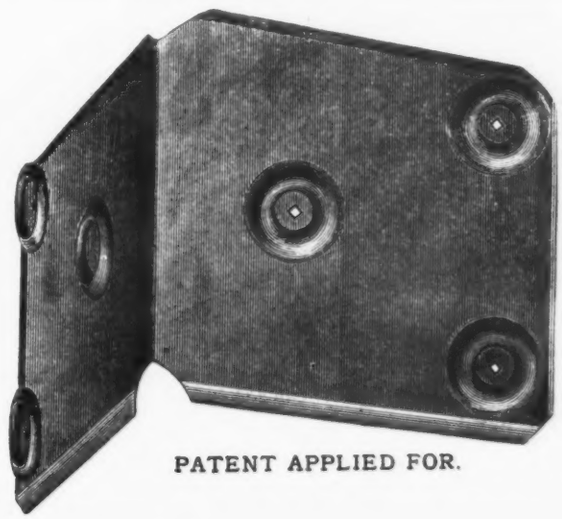
Diamond Lock Works, Lancaster, Pa.

JOHN H. GRAHAM & CO., General Agents,
113 Chambers Street, New York, N. Y.



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CARY'S
FRUIT CRATE CORNER.

Also Applicable for Trunks, Trays and Packing Cases.

So constructed that the edges bind the wood very closely when nailed on, making a very rigid as well as handsome corner.

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CARY MFG. CO.,
41 AND 43 CENTRE STREET, NEW YORK.

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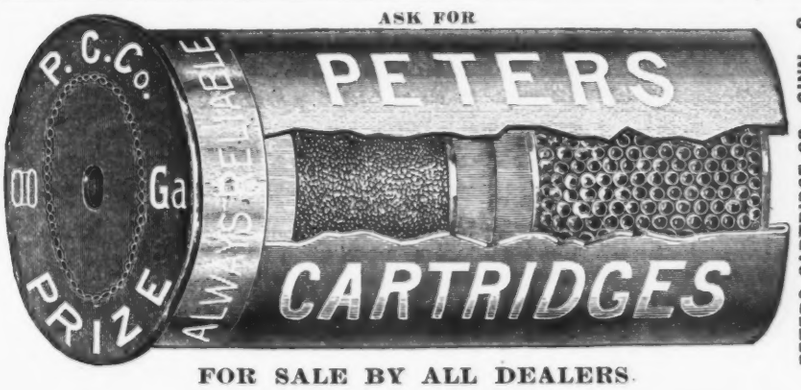

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ROSS' PNEUMATIC WHISTLE

FOR SPEAKING TUBES.
ALWAYS READY FOR USE.

NO SPRINGS.
Nothing to get out of order.

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JAMES FALLOWS & SONS,
229 Arch Street, PHILADELPHIA.

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The STORM MANUFACTURING CO.,

NEWARK, N, J., April, 1892.

TO THE HARDWARE STORES
EVERYWHERE.

Gentlemen:

Our story is a short one, please read it. We are the largest manufacturers of Dumb Waiters and Hand Elevators in this country. Our goods are made specially to be sold by the hardware trade.

Thousands of stores are posted on our goods and are selling them. Are you?

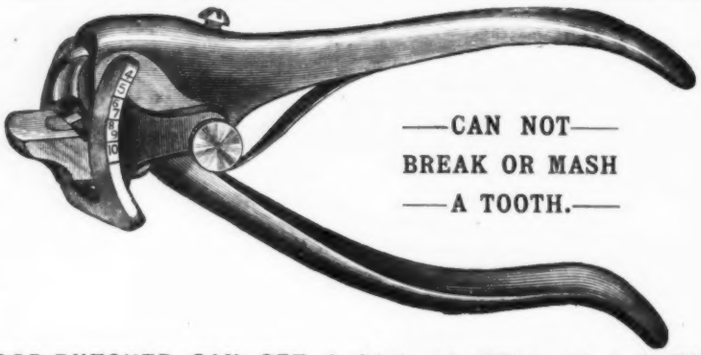
If not write to us, or John H. Graham & Co., 113 Chambers St., New York, and we will post you up. Anyway send for our new catalogue, we think it will interest you.

Very truly yours,
THE STORM MFG. CO.

JOHN H. GRAHAM & CO., 113 CHAMBERS STREET, New York Agents.

YOU CAN MAKE NO MISTAKE!

LLOYD ACME



—CAN NOT—
BREAK OR MASH
—A TOOTH.—

SAW SET.

A WOOD-BUTCHER CAN SET A SAW AS WELL AS A SAWYER.

The Screw on the top of the Set prevents mashing the Tooth. The Gauge on the side assures the correct set, and the small Screw on the face of the Set gives the required bend to the tooth. All wearing parts are made of steel, strong and durable.

LIST: HAND SAW SETS, $15.00 PER DOZEN. CROSS CUT SAW SETS, $30.00 PER DOZEN.

METROPOLITAN.

This differs from our other wood frame wringers of medium price in having malleable iron swinging clamps of a strong and improved pattern, that swing under the wringer, and a folding apron, allowing the machine to be closely packed for shipment, and it is preferred by many because of the small space it occupies in storage. It is a handsome, well proportioned machine, of hard maple frame, the wood being selected, free from defects and blemishes. Two top thumbscrews, metal journal boxes and oil cups combined, double gears, etc.

Furnished in natural wood or cherry stain without extra charge.

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THE PEERLESS MFG. CO.,
CLEVELAND, OHIO.

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Our Cherry Stoners are specially adapted to rapid work. They are easily adjusted for different sizes of Cherries and are durable, efficient and cheap.

Japanned, $7.50 per dozen.
Tinned, 9.00 " "

OUR FRUIT PRESSES ARE UNEXCELLED.

For making Wines, Jellies and Fruit Butters from all kinds of fruit, our Fruit Press will delight the good housekeeper.

It is not intended for making Cider.

Send for Full Catalogue and Price-List.

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Fine Machinists' Tools and Firearms.

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Is the Favorite

EVERYWHERE

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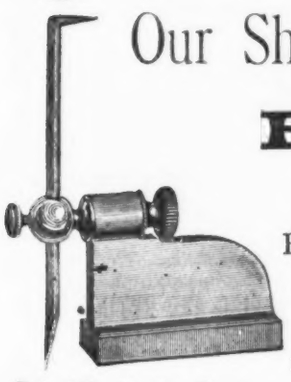
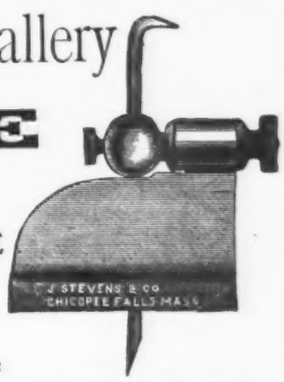


Patent Combination Gauge.



Patent Combination Gauge.

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MANUFACTURER OF

HARDWARE

AND

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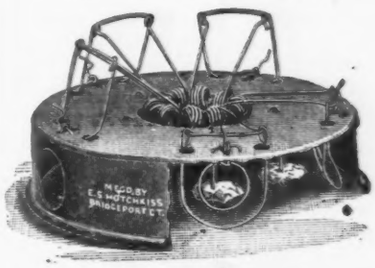

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Patented March 31, 1891.

Mouse Traps, Horse and Barbers' Clippers, Curry Combs, Rat Traps, Wrenches, Lemon Squeezers.

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Porcelain Lined Lemon Squeezers

Best Common Mouse Traps, Steak Hammers, Boot Jacks, Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

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COLD HANDLE

Wrought Steel Spiders,

WITHOUT RIVETS.

Will not absorb grease.
Will not impart flavor of previously cooked food.
Will not burn before cooking.
Will not scale.
Will not warp.
Will "NEVER-BREAK"

The Handle is made round, fits the hand perfectly and is ALWAYS COOL.

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It is a Weed Eradicator.

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For Carving and Bread Knives, Shears and Scissors.

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"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a guarantee that they cannot break, bend or warp. An important feature also is that they are made without rivets, and cannot leak or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

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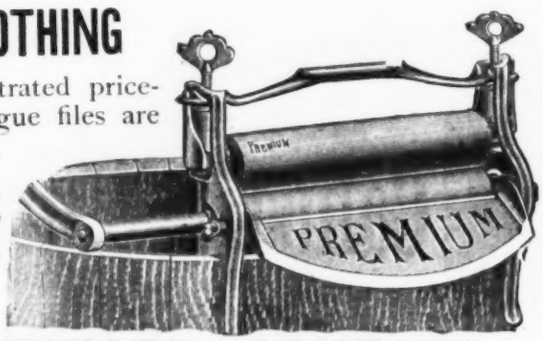

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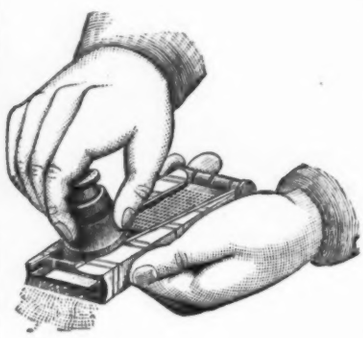

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Uses Every Grain of the Spice.

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COFFEE MILLS, RAT TRAPS.

Don't wait for your Competitor

TO BUY THE WADDEL IMPROVED COFFEE MILLS AND OTHER SPECIALTIES, FOR YOU'LL LOSE MONEY ON'T EVERY TIME. OTHERS FIND IT

BETTER to LEAD THAN to FOLLOW.

Write for our Catalogue and Bottom Prices.

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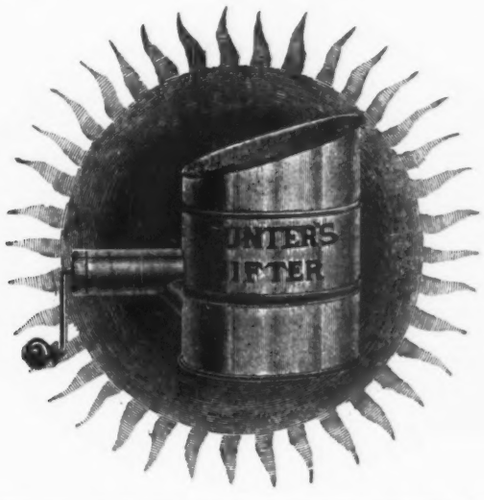

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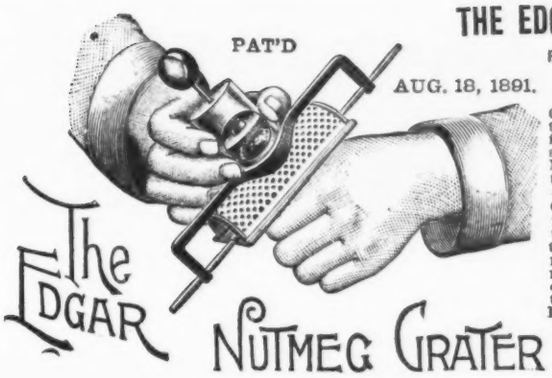
Made only by **The FRED. J. MEYERS MFG. CO.,** Covington, Ky.



THE EDGAR NUTMEG GRATER

POSITIVELY THE ONLY GOOD NUTMEG GRATER EVER MADE.

It is the old-fashioned Nutmeg Grater, with a carrier for HOLDING the Nutmeg, so attached as to move freely, forward and back, and from side to side, preventing the grated Nutmeg adhering to the surface of the Grater and bringing every part of its surface into use. Using this Grater, the Nutmeg can be grated to the merest shell without injury to the fingers or nails or dropping the Nutmeg. Its simplicity commends it. It is durable and economical and retails for 20 and 25 cents each. Liberal discount to the trade. Ask your jobber for the EDGAR NUTMEG GRATER.

EDGAR MFG. CO.,
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GENUINE **FLAX FIBER-WARE**

has **come to the front** to stay. The *Best, Largest, Handsomest, Quickest Sellers.* No. 5 (colored) and 5X white) have *Artistic Hand-Painted Decorations* in oil colors. This is an era of art decoration, and **No Dealer can afford to be without these Decorated Goods,** which always bear above trade-mark, and are made only by the

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OFFICE OF
K. FITCH & CO.,
Hardware, Stoves, Tinware, etc.,
Kansas City, Mo., Jan. 15, '92.

The Sun Stamping Co., Kalamazoo, Mich.

GENTLEMEN:—Yours of the 11th, rec'd and contents noted. In reply, say, that The Morgan Broilers we sold have given so far as we have learned, good satisfaction—*not any complaint.* We have been using one in our house for more than a year, and we could not be induced to part with it for any reasonable consideration. We find it **DOES** the work as represented, when instructions are followed. It **DOES** make meat juicy and tender, and for the purposes for which it is intended, we believe it to be the most economical piece of furniture we have in the house. * * *

Very Respectfully,
K. FITCH & CO.

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The Morgan specialties in tin and sheet metal are manufactured solely by

THE SUN STAMPING CO., - - KALAMAZOO, MICH.,
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HOLLOW-WARE

of every description, the highest grade and best finished in the world. Our goods are made by the best mechanics procurable and of the best material.

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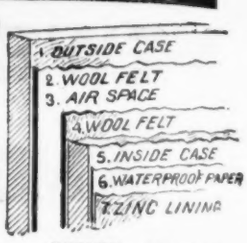

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The New Patent Air-tight Horse Shoe Lock, as shown in this cut. Patent Arched Center, False Bottom for Doubly Cooling the Air and Numerous other Improvements which make the GLACIER as far ahead of other Refrigerators as the electric light is ahead of the candle.

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MILWAUKEE, WIS.,

Manufacturers of the Best Charcoal

"SAD IRON"

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AGENTS WANTED EVERYWHERE.

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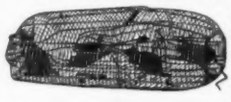
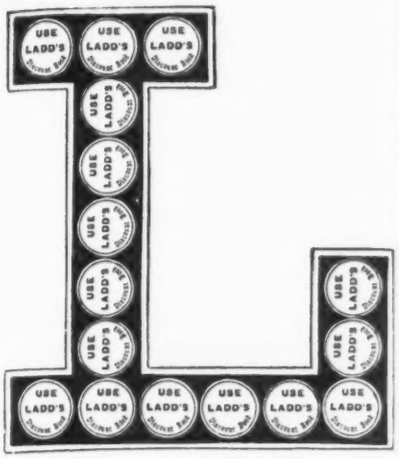
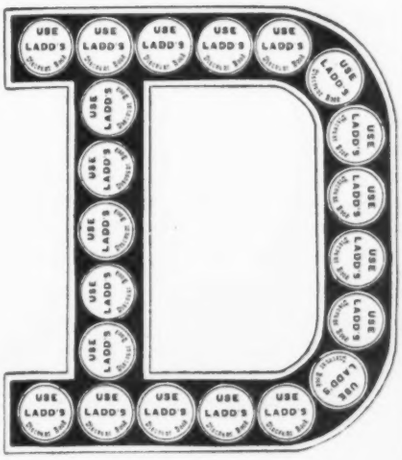
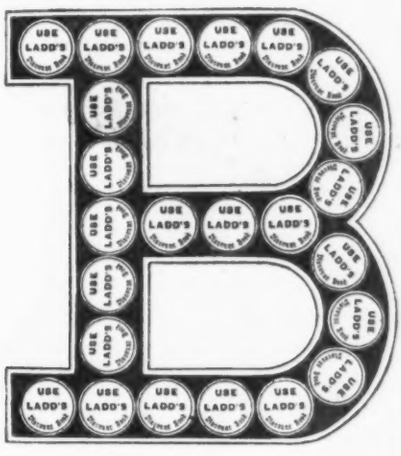


catches from *ten to thirty* rats in one night; one man reports *six hundred* in eighteen days; another *eighty* in twenty-four hours. Beware of imitations, get the genuine "*Marty*" trap, see that my name is on each trap before buying. A great seller and pays a good profit. Write for prices to **A. W. PAINE,** 29 Dock Square Boston, Mass







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CHEAP EGGS SOON!

This new way of cooking eggs (by steam) is becoming very popular.

The best is none too good for people now-a-days, especially when half a dollar will obtain it. Be sure and have some **Buffalo Steam Egg Poachers** always on hand, so not to disappoint customers.

No. 1, Plain, $6.00 per doz.
" 2, Retinned, 9.00 "
Discount, — per cent.

SOLE MANUFACTURERS,

SIDNEY SHEPARD & CO.,

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A DIFFICULT PROCESS MADE EASY

THE BUFFALO STEAM EGG POACHER

POACHES EGGS BY STEAM.

WHEN READY FOR THE TABLE THE EGGS ARE OF UNIFORM SHAPE AND INVITING APPEARANCE.

MAY BE TRANSFERRED TO TOAST OR PLATE WITHOUT DANGER OF BREAKING.

Mrs. Gen. Lew Wallace Says:

"Lifting the cover discloses the delicate morsel, the yolk gleaming in soft color through a cloud of transparent whiteness. Have ready the buttered toast; the eggs slip each from its own little cup easily as from the parent shell: a dish fit to set before a king. Easy to have a delicious luncheon with the aid of the bright utensil which makes cooking so easy, it seems to act with its own intelligence. In the sea of trouble awaiting the young housekeeper pushing out into unknown depths, the Buffalo Steam Egg Poacher will be found a sure thing to rest upon when all else fails."

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When selling an article, remember the purchaser regards the price while he is buying, but the quality when in his possession. You run no risk of losing a customer in either event when selling **The Weisell Washer.** For prices address

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PUSH BROOMS of every description, Rattan, Steel Wire and Brass, for all uses. Stable, Street, Bloom, Chill, Frog Switch, shop and scrubbing work. Brooms for heavy and light work. Brushes of all kinds for Casting, Moulders, Mill and special uses, &c., &c., made by

JOS. LAY & CO.

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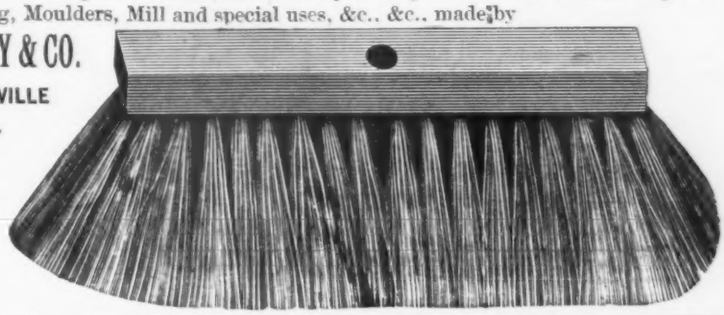
Send for Catalogue and prices.



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Made of any gauge of sheet steel desired, suitable for handling nails, bolts, nuts, washers, ore, coal, quartz and other rough heavy substances. Can't be knocked to pieces. Thousands in use, proving durable and satisfactory. Write for prices.

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IMPROVED EDITION OF THE IRON AGE

HARDWARE PRICE BOOKS.

Arranged by R. R. WILLIAMS, Hardware Editor of the Iron Age.

These Books are printed on paper of superior quality and bound in grain seal leather.

Columns are provided for the name and number or size, for noting from whom purchased, date of quotation or purchase, list and discount, and for entering freight expenses as an element of cost. Under the heading of selling prices, the regular and any special price or remarks in regard to the goods are given place. This book goes into considerable detail in describing the goods and cost prices. It has been arranged in accordance with the views of many Hardwaremen whose methods are careful and exact.

Size, 4 x 7 in.; grain seal leather.

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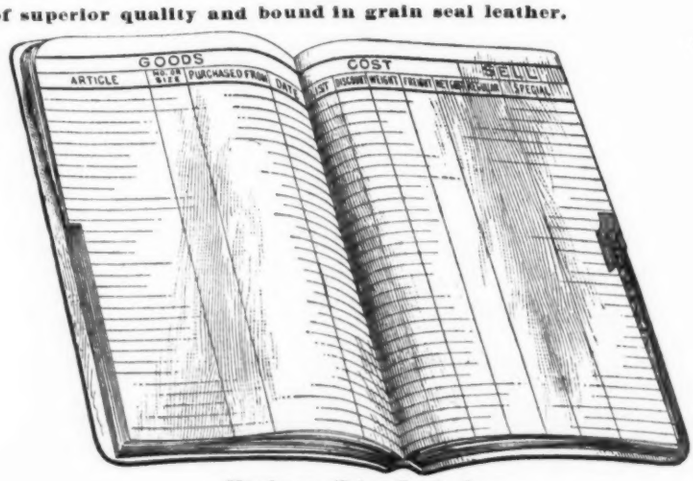
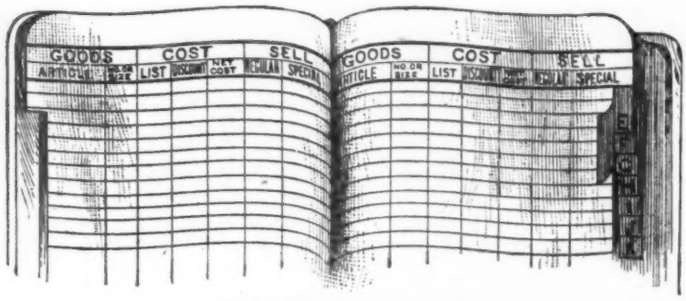


Hardware Price Book A.



Hardware Price Book B.

In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

Size, 4 x 7 in.; grain seal leather.

FOUR EDITIONS:

B, 200 pages	$1.00
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The headings in Book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in Book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price, and also for any remarks in regard to cost of the goods, desirability of pushing them, or other matters.

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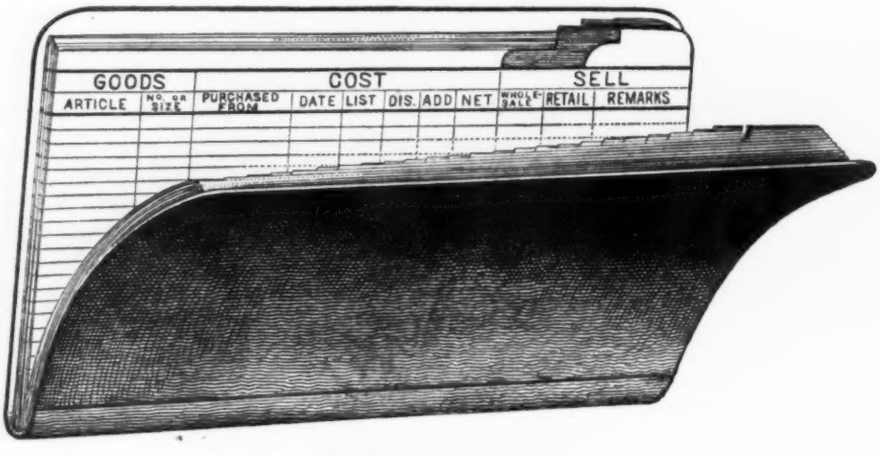
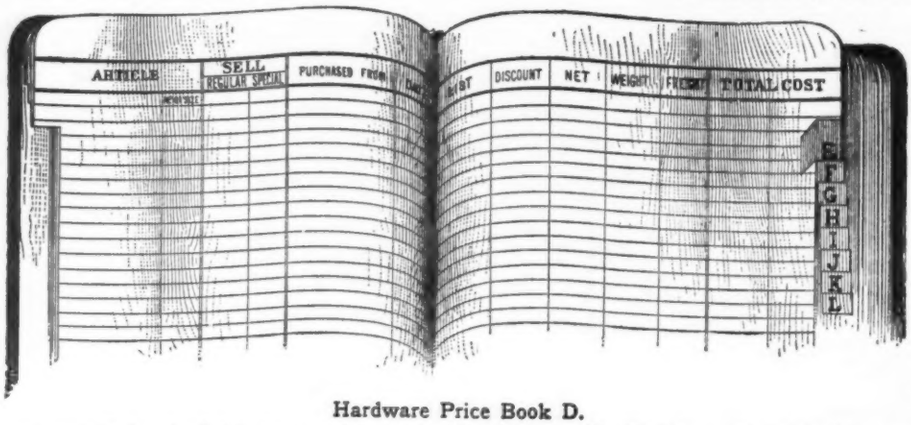


Hardware Price Book C.



Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction. Size 5¼ x 8 in.; grain seal leather.

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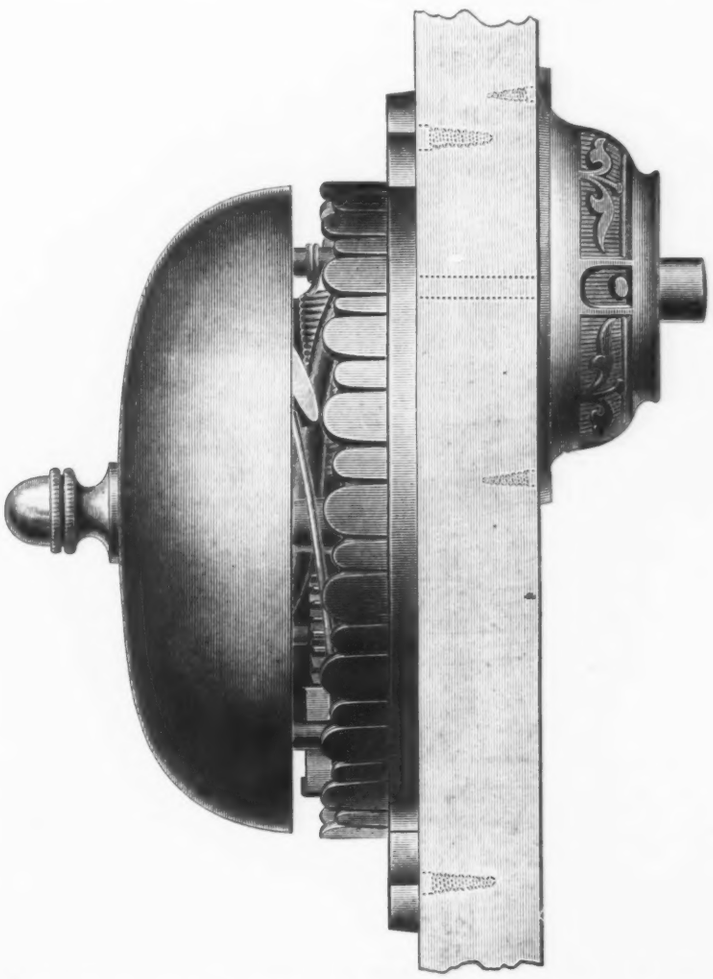
Patent Electric-Ring Door Bells.

NO BATTERY, SELF-WINDING, PUSH OR PULL.



Full Size Cut showing No. 62½ Bell Mounted with Round Push Button.

In this Door Bell we produce the effect of an Electric Bell without the expense and annoyance of the battery and other electrical contrivances. With this new patent the merchant may supply his customers with an Electric-Ring Bell, suitable for any of the many places that a Bell may be required, and one which may be used either with a Push Button or a Bell Pull. The sound given is exactly the same as a powerful electric bell. It is self-acting, self-winding, and as it is always ready for use, it requires no attention after it is set in place.

Packed with Bronzed and Bronze Metal Push Buttons, complete with Screws.

—Manufactured by—

SARGENT & CO., New Haven, Conn., and New York.

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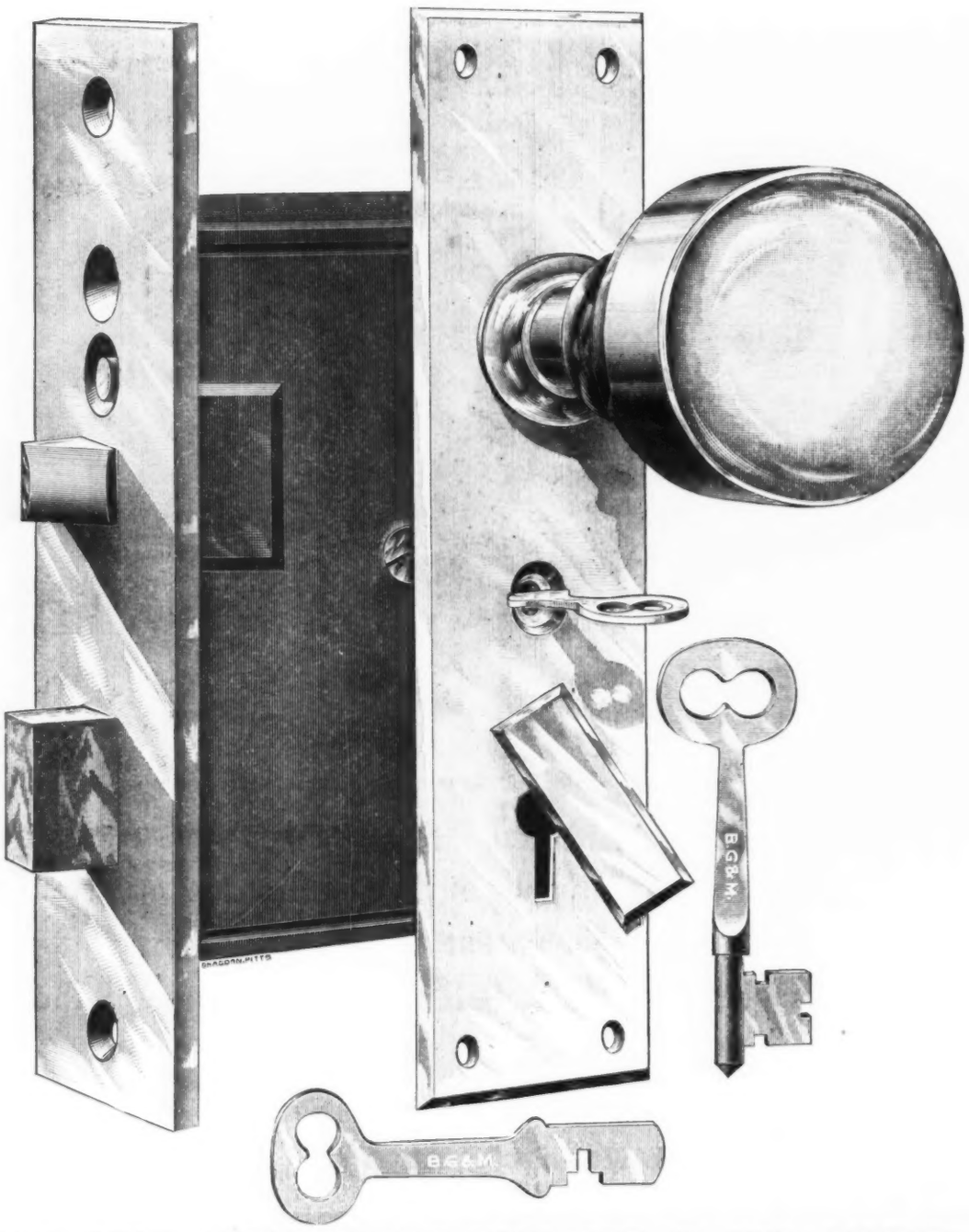
With Flat Steel Keys to Night Works and three tumblers. Made in Plain and Ornamental Bronze.



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WRITE FOR PRICES.

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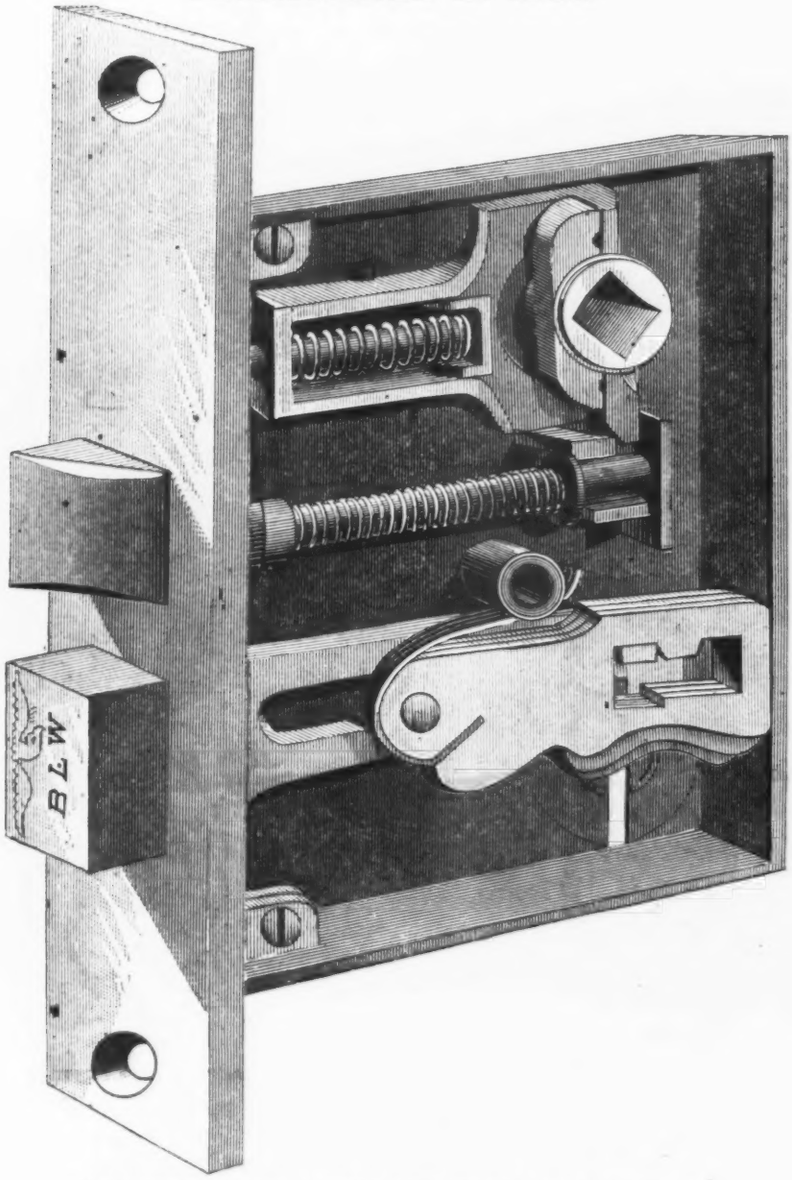

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Patent Nickel Plated Steel Keys. Three Tumblers of cold rolled Polished Steel.

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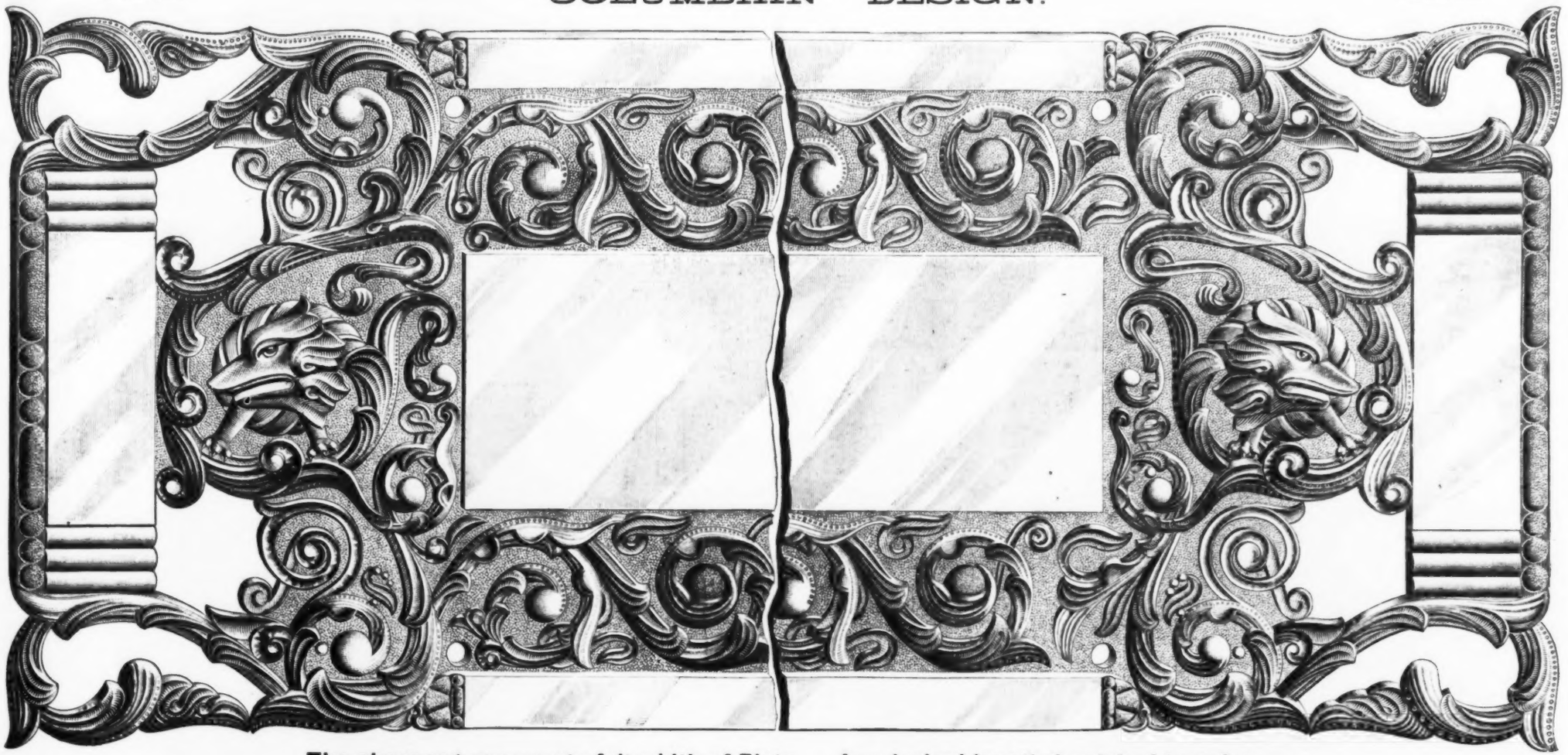
We make complete line of Hardware in this Design.

BRONZE METAL KICK PLATES,

FOR BOTTOM OF DOORS.

"COLUMBIAN" DESIGN.

We can furnish any Style of Finish desired.



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WROUGHT STEEL DOOR LOCKS.

RUSSELL & ERWIN MFG. CO.,

SOLE MANUFACTURERS,

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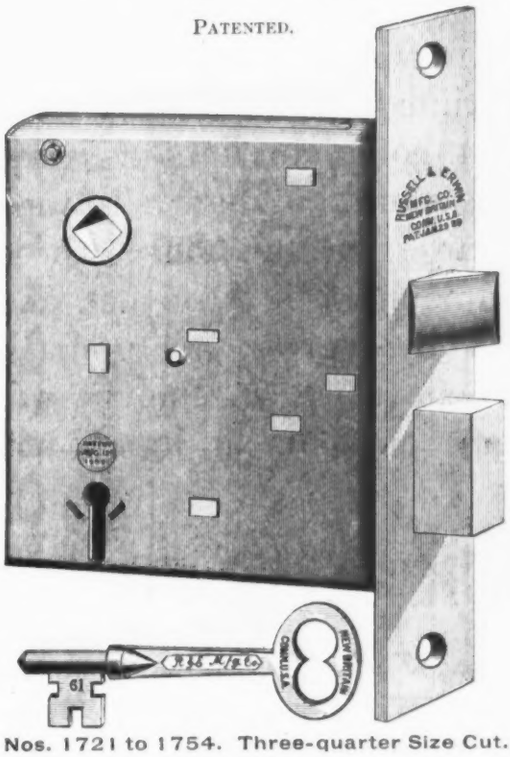

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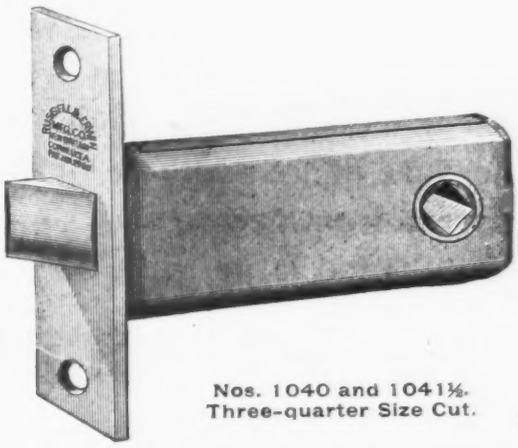
The goods excel in lightness and strength, in beauty of design, and novelty of finish; and being made from wrought metal, are uniform in size and exact in measurement.



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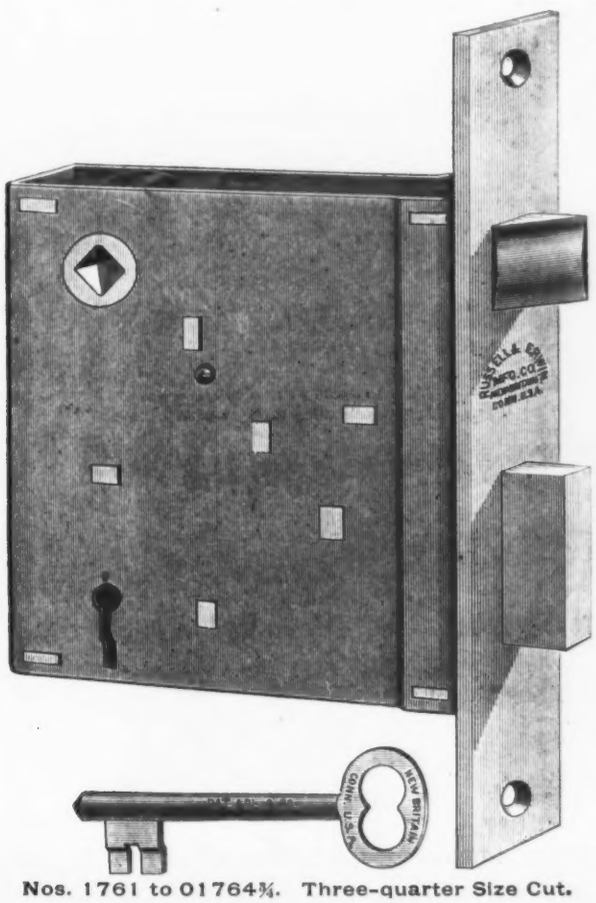
Mortise Knob Locks in sets complete with Knobs and Escutcheons. Sliding Door Locks. Horizontal and Upright Rim Knob Locks, Night and Knob Latches and Closet Locks.



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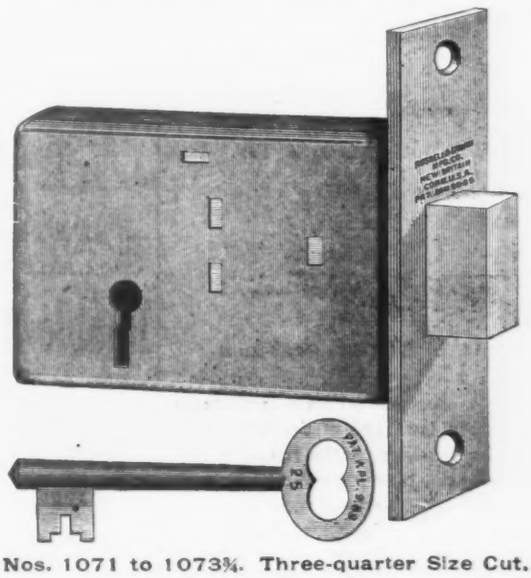

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Our new catalogue and price-list is now ready for distribution. It is a book of 404 pages, $10\frac{1}{2}$ x $12\frac{1}{2}$, printed on heavy paper, and contains illustrations and descriptions of a complete line of locks, knobs, keys, escutcheons, bell pulls, padlocks and builders' hardware.

A copy will be furnished without charge to any house whose purchases from us during the year 1891 amounted to $100 net, and will be sent with the first goods ordered, or by express, not prepaid. To others we make a charge of $5.00 per copy, which amount will be deducted from account as soon as same amounts to $50.00 net. The book is too large to be sent by mail.

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A simple, clear and accurate presentation of the general laws, and of the laws of the several States relating to the rights of property, contracts, debts, partnerships, bankruptcy insurance, corporations, marriage, divorce, &c., &c., with which are included correct copies of all legal instruments and forms, such as notes, deeds, mortgages, leases, wills, &c., and a dictionary of legal words and phrases.

FOR SALE BY DAVID WILLIAMS
Publisher and Bookseller,
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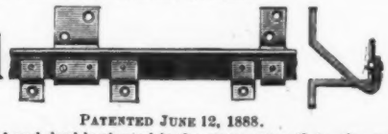
We are the original makers of steel covered hangers and all others are imitations. Beware of infringements, as we shall protect our rights.

In our Steel Covered Hangers we have all the desirable features of the Best Hangers in the market, and with that we combine the cover for wheels SO NO ICE OR SNOW can reach the wheels, and making this cover as we do, we stiffen it so it is the strongest Hanger in the market, and we believe it is just perfect. Would be glad to have you try a small order and satisfy yourself.

Double-Braced  Steel Rail.

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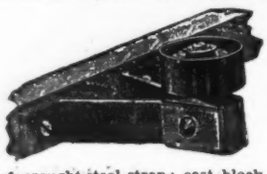
This rail being double-braced and double-riveted is the strongest rail in the market. Being braced both ways it will not sag. The joint is made so it is perfectly solid. It comes complete and ready for use, requiring only screws and screw driver for any man or boy to put it up in short order. It can be used for any grooved wheel Hanger, and a heavy door will not make it spring or tremble. Guaranteed to hold a door weighing 2,000 pounds, and used in connection with our Anti-Friction Hanger will work perfectly on large or small doors.

Cronk's Adjustable Stay Roller.



Made of wrought steel strap; cast block with slot adjusted by loosening bolt.

Cronk's Inside Adjustable Stay.

Is cheap, simple and durable, and much better than a cleat nailed on the floor for this avoids all friction and leaves no place for dirt to accumulate. $2.00 per doz. No inside door can be properly hung without this stay.

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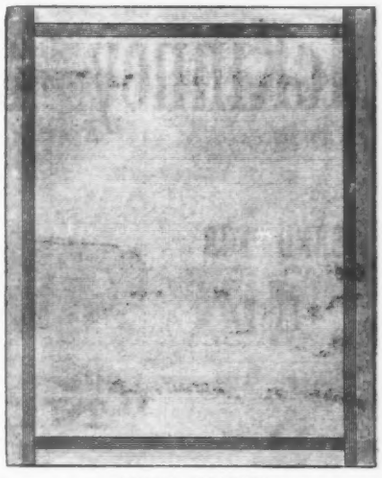
SCREEN DOORS AND WINDOWS

MADE TO ORDER, AT MODERATE PRICES.

Of course you sell a great many adjustable window screens and stock sizes of screen doors, but did you never have a customer say: "Those adjustable screens are all very well in their way, but I think I would prefer to have screens made up to fit my doors and windows. I own my house, and it seems to me that the made up screens look better, are more convenient and give more air. The trouble is that it costs so much to get anything decent."



ALIKE BOTH SIDES.

Instead of backing down, just tell him: "All right, Mr. Jones, we have just what you want. The Phillips people, who make the most reliable line of adjustable screens, have fixed up this season to make screens to order as well. They have very neat patterns and do nice work. Here are samples of the woods used, illustrations of the screens and net prices, so that we can tell just what they will cost and see how they look."

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Centennial Award. "Superior in Every Respect.

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is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."

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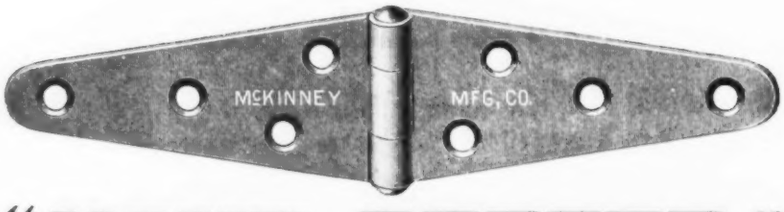

ORDERS FILLED ON SIGHT.

"NONE BETTER."

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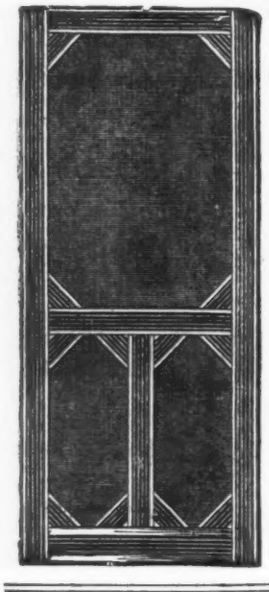

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The Newest and Best Thing Out.

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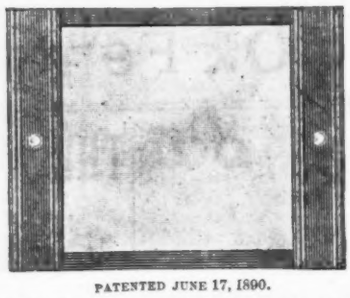

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Sticks and Corners FOR DOORS & WINDOWS.

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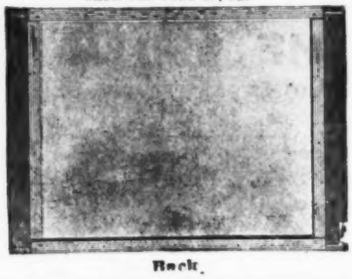

Back.

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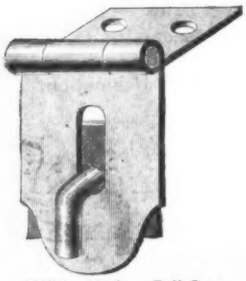

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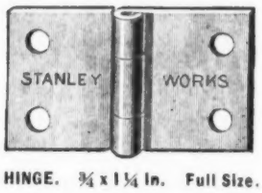

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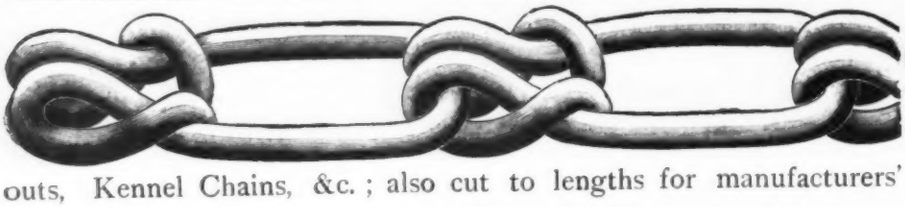

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The cut represents the exact size of 6/0

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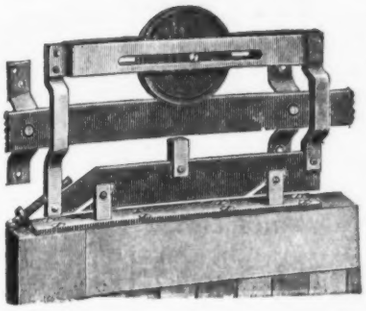

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This Hanger is made of Steel.
The Wheel is also Steel, except the filling or tread.
The Track is of Steel—a single one only.
The Hanger is Anti-Friction.
More nearly Noiseless than any other.
Ease of adjustment.

Can be erected with half the labor others require.
Track will not swell, shrink or warp out of true.
No cutting of doors.
No matching of hardware.
Simplicity in all its parts.
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ALSO LANE BARN DOOR HANGER AND TRACK. SEND FOR CIRCULARS.

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With freights in our favor and a line of Builders' Hardware unsurpassed for quality, finish and design we are in position to offer special inducements. Try us.

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WE MANUFACTURE A LINE OF

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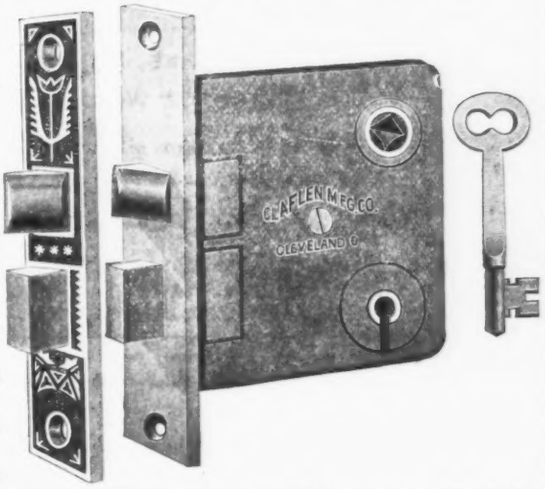

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Sizes; ¾ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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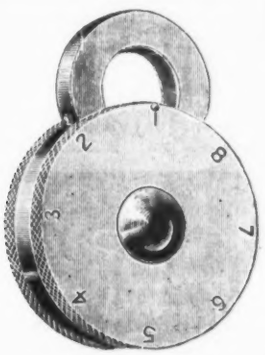

IF COMBINATION LOCKS

ARE NECESSARY ON YOUR

SAFES AND VAULTS,

WHY NOT PROTECT YOUR

HOUSE DOORS

and all other places containing valuables with them? We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

THE CANTON COMBINATION LOCK CO., CANTON, O.

KEYSTONE LOCK WORKS,

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E. T. FRAIM, Lancaster, Pa., U. S. A.

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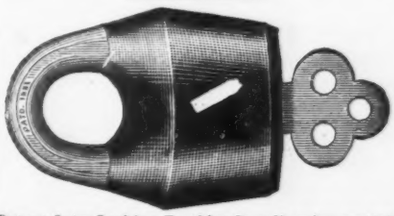

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CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

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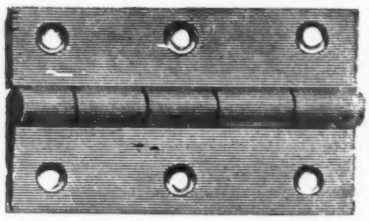

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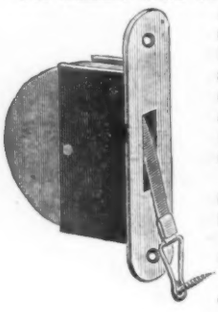

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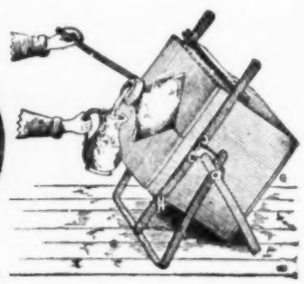

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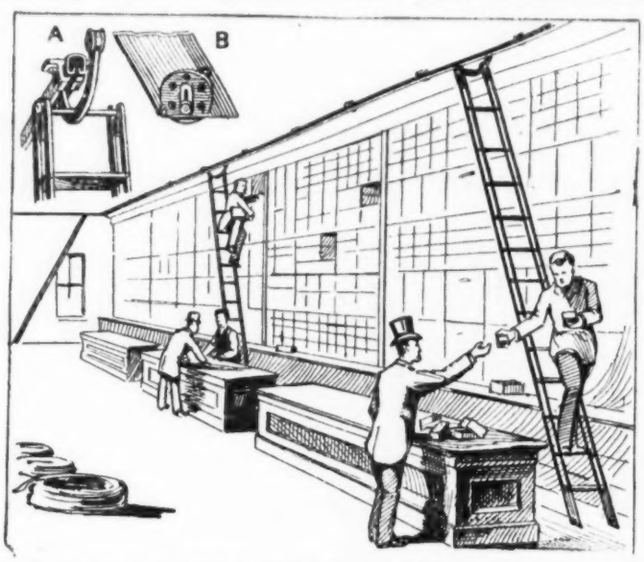

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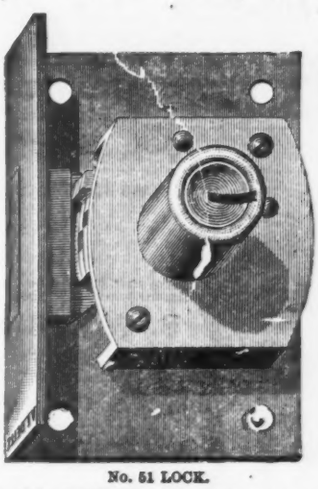

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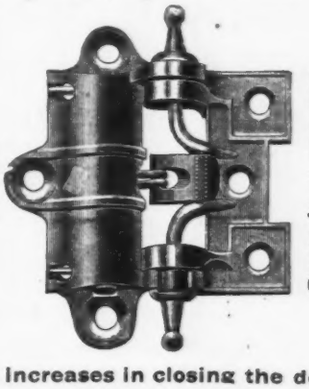

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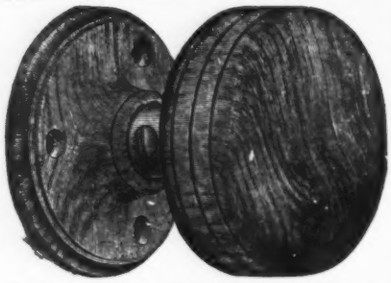

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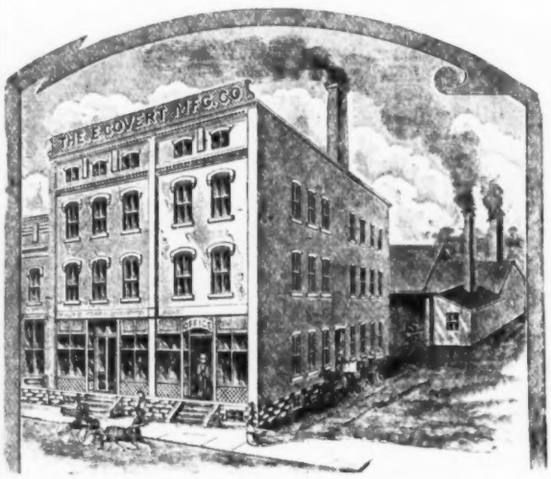

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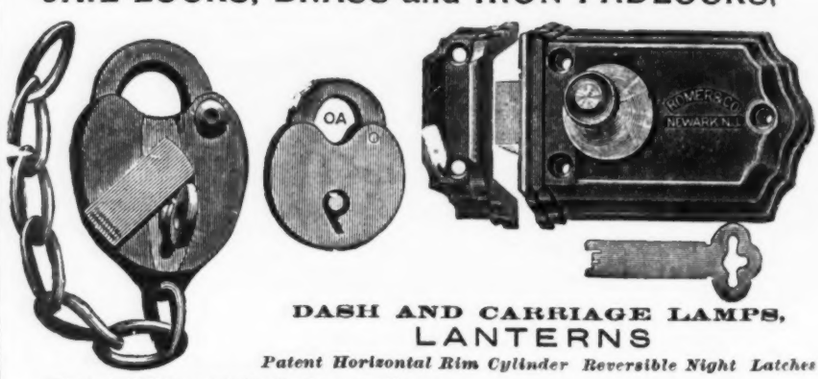

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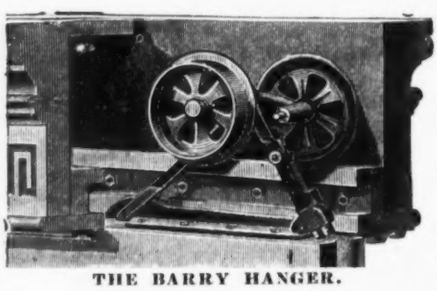

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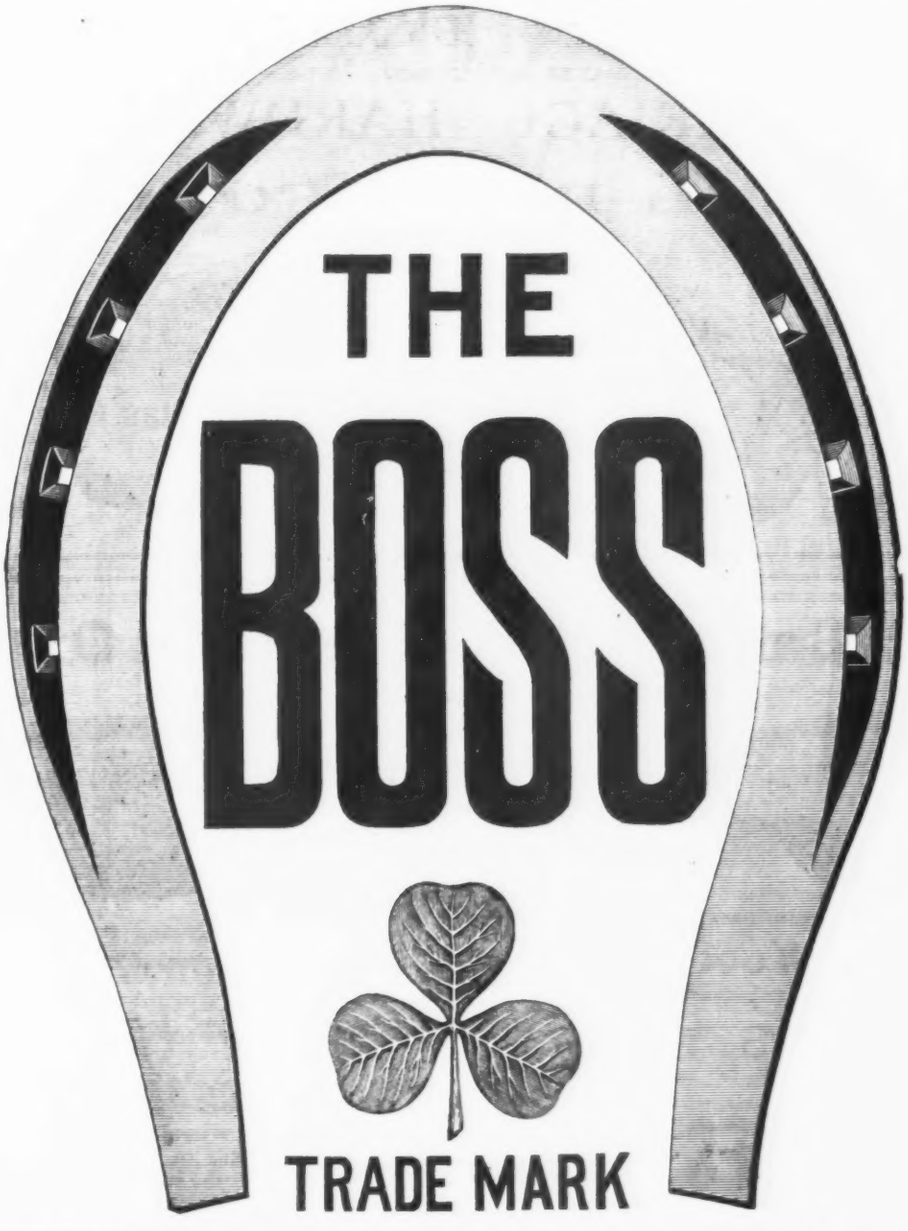

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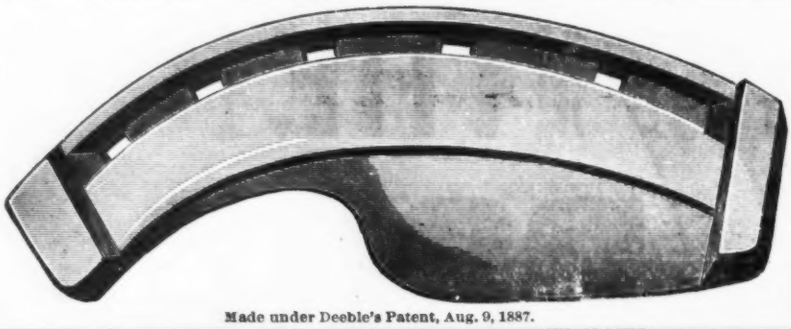

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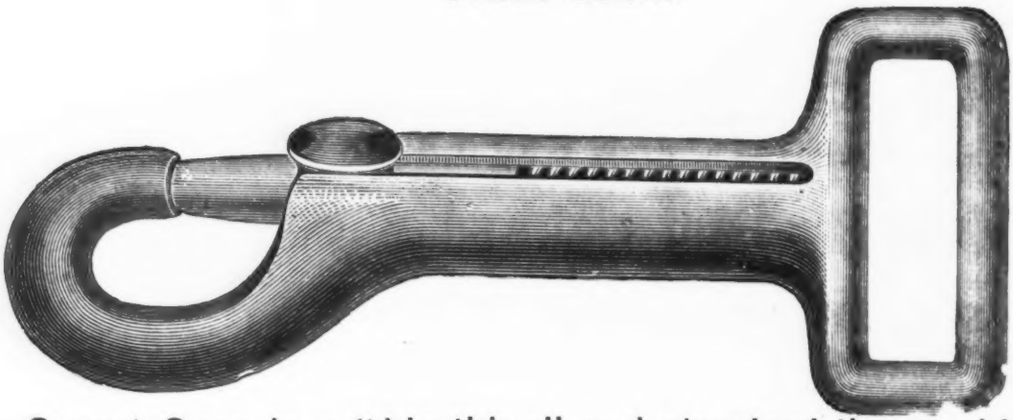

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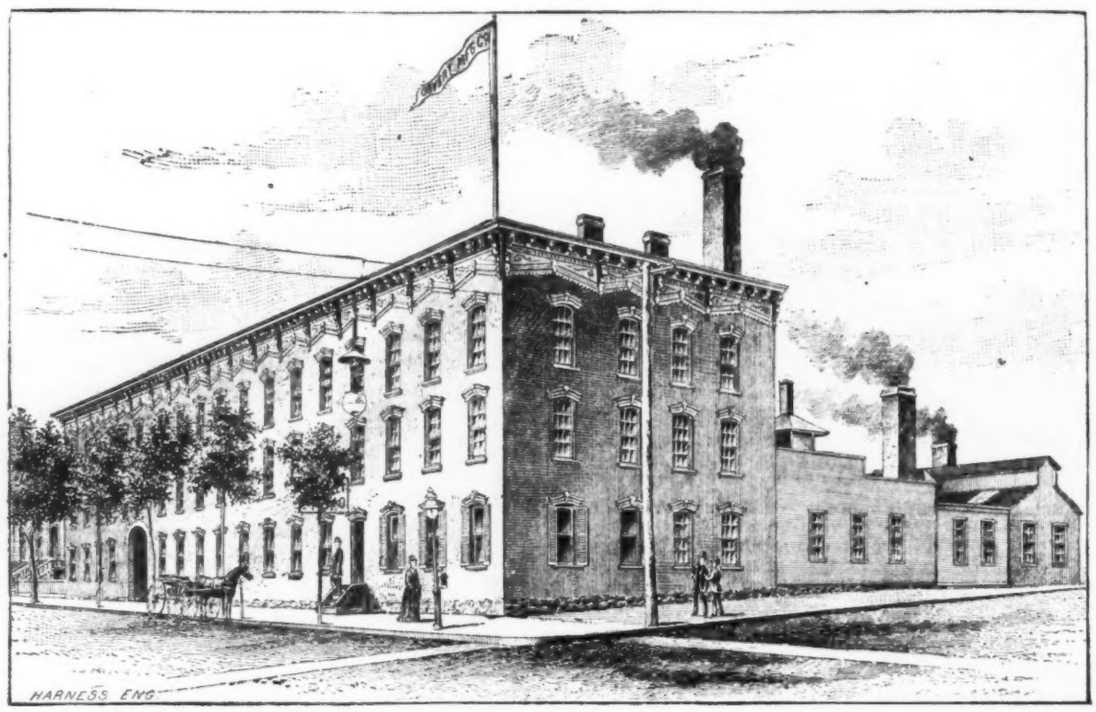

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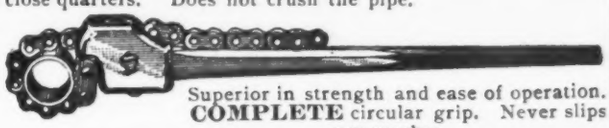

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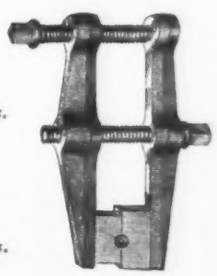

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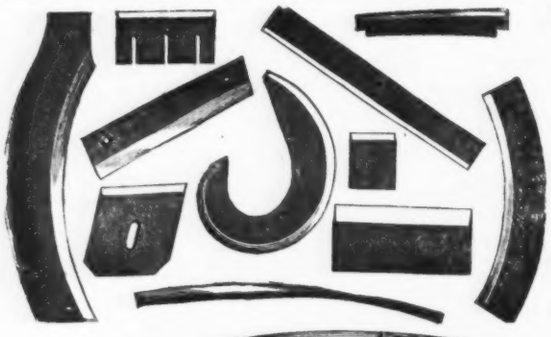

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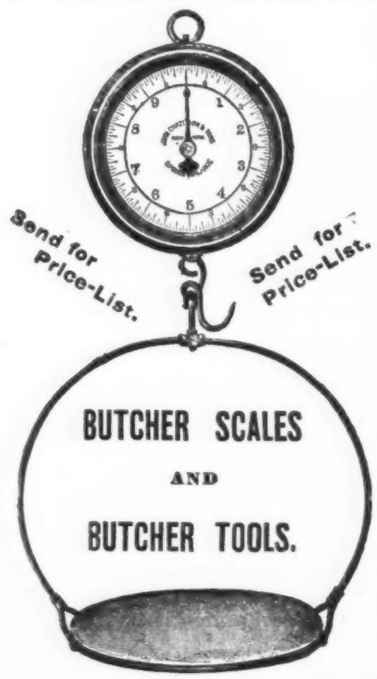

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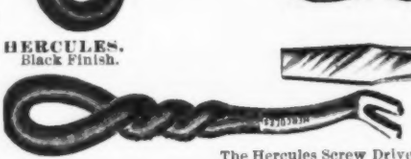

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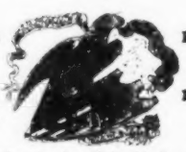

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Registered March 31, 1874.

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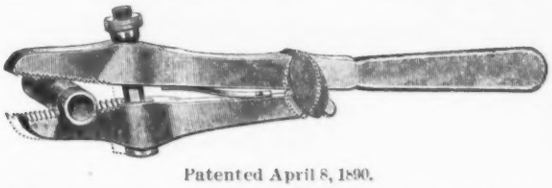

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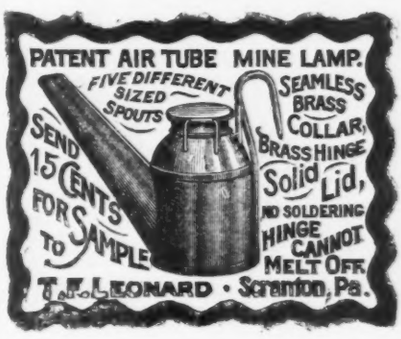

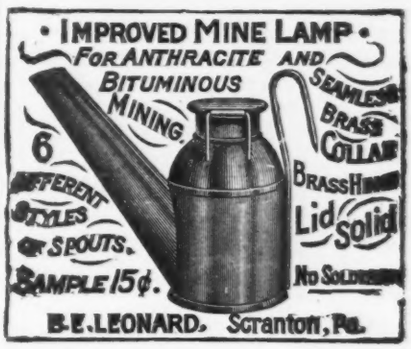

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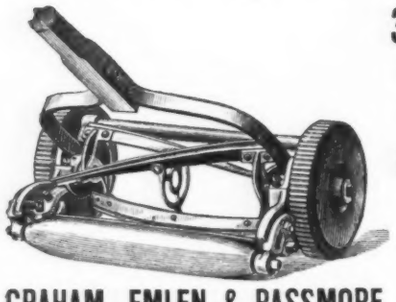

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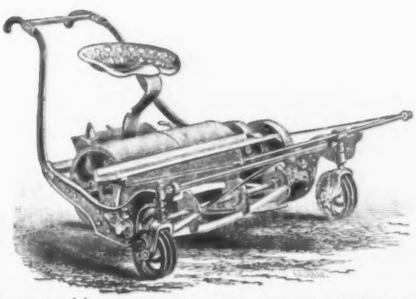

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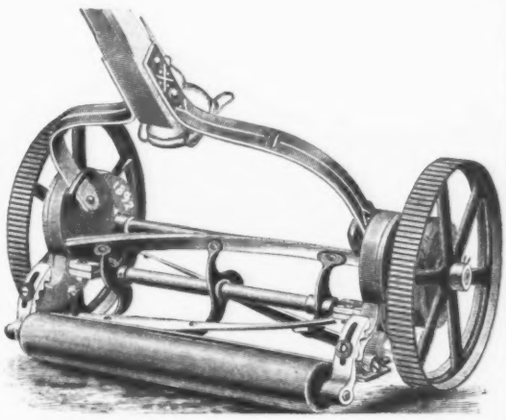

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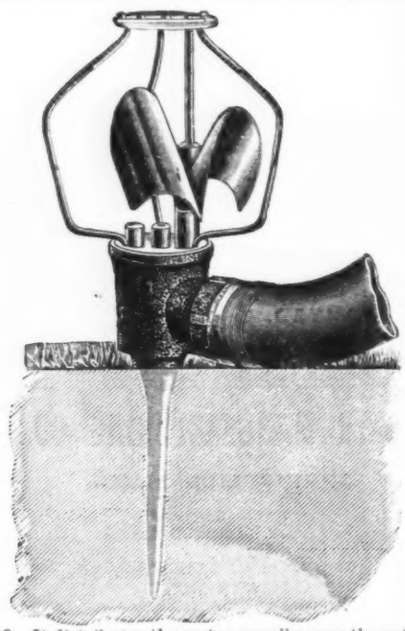

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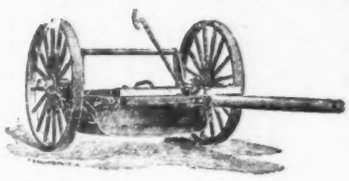

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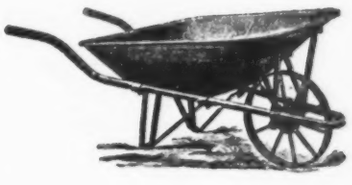

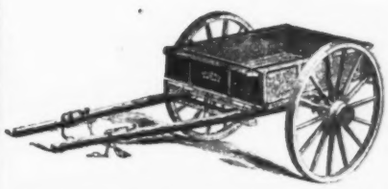

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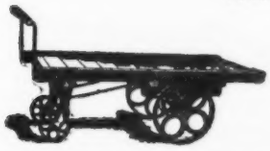

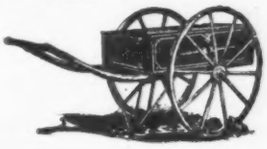

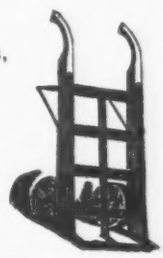

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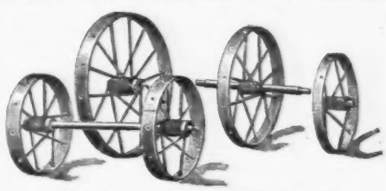

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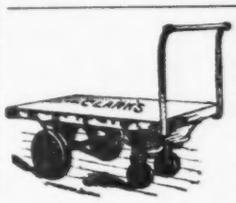

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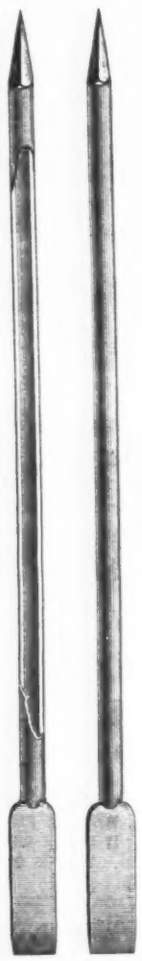

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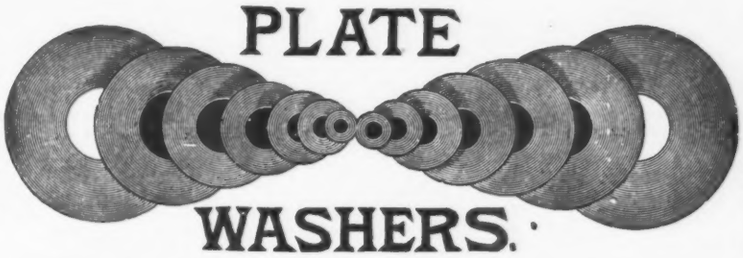

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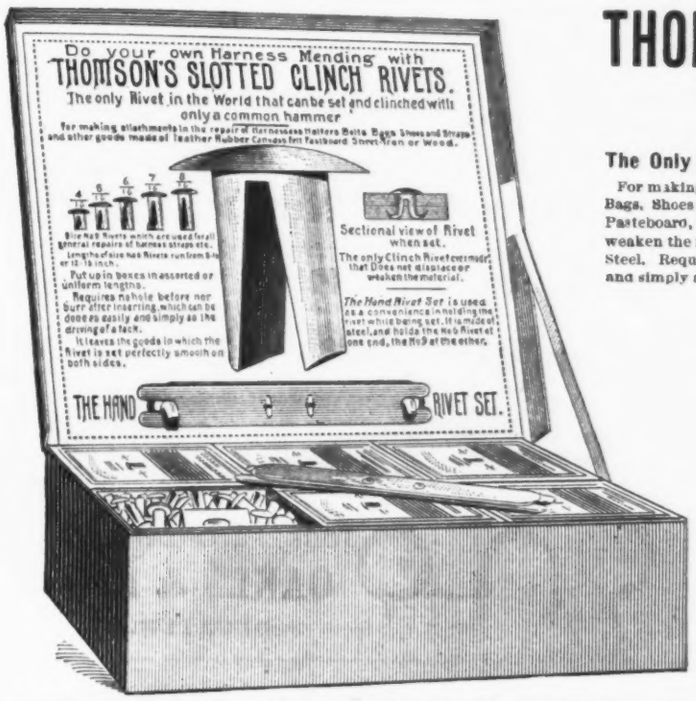

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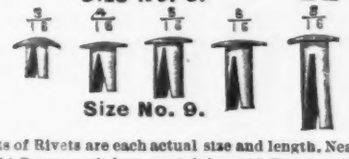

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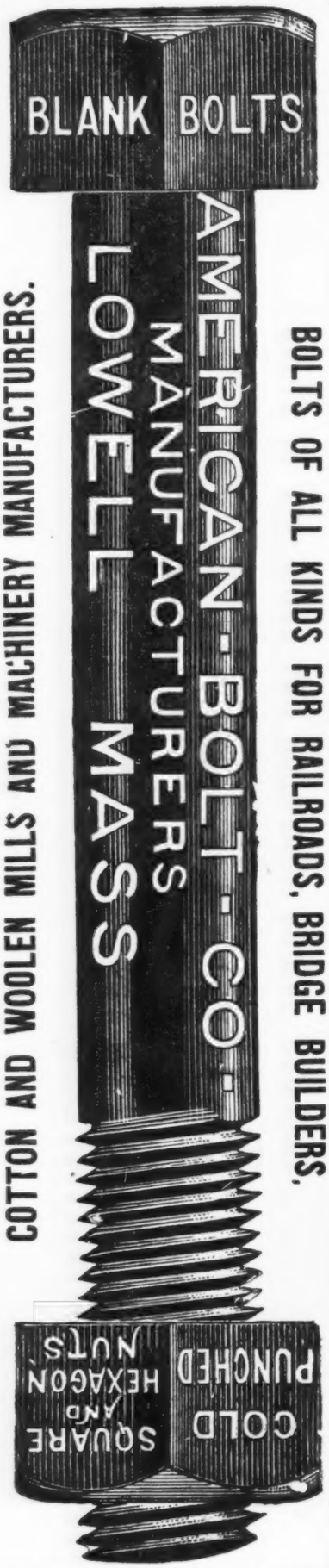

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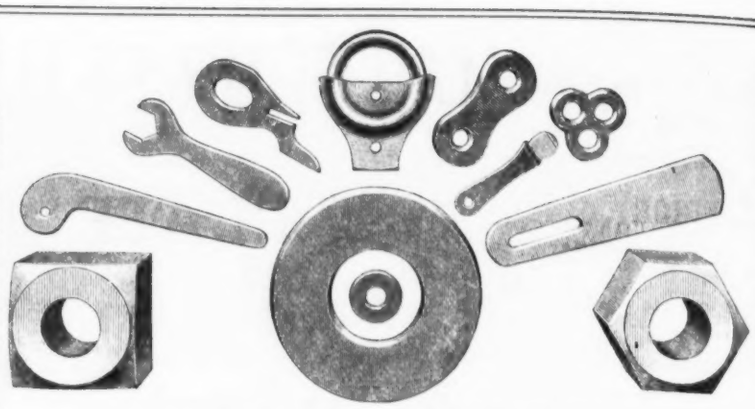

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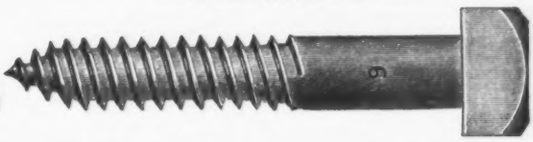

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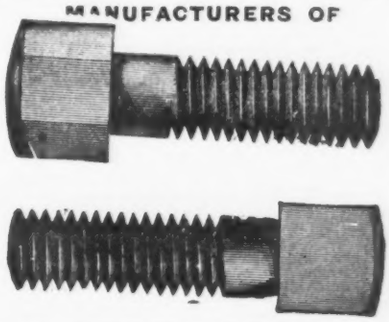

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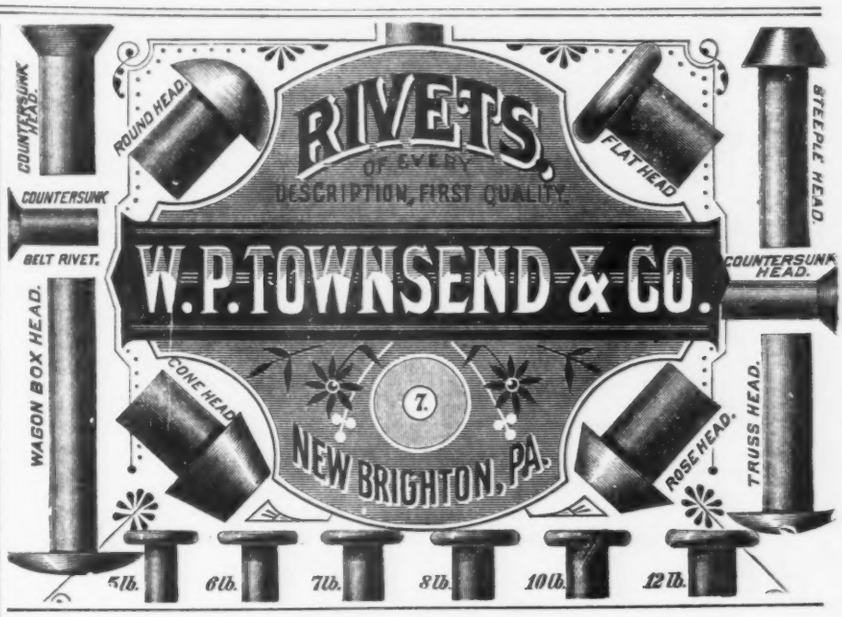

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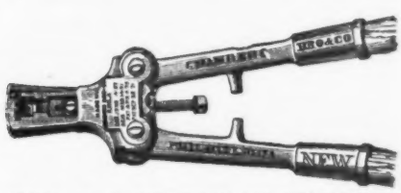

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N. Y. Belting & Packing Co., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Gram Curtis, Pittsburgh, Pa.
Herrick, J. A., 15 Whitehall St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amaler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein, W. M., Philadelphia, Pa.
Stein & Schwars, Philadelphia, Pa.
Swindell W. & Bros. Pittsburgh, Pa.
Taliman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

(See Alphabetical Index, Page 146.)

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Ball Engine Co., Erie, Pa.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Foundry & Machine Works, Harrisburg Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn
Church, Isaac, Toledo, O.

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum, E. T. Detroit, Mich
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co, Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fishing Tackle.
Dame, Stoddard & Kendall Boston, Mass.

Flint and Emery Paper.
Raeder, Adamson & Co., Phila., Pa.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cincinnati, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F., Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Parson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Colliau, Victor, Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Parson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp, Clarence M., Baltimore, Md

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Works.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
James, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. . & Co., Gloucester, Mass.
Improved Process Glue Co., Gloucester Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co., Chicago, Ill.
Gennon & Krause, Chicago Ill
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gun Implements.
Union Hdw. Co., Torrington, Conn.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hand screws.
Grand Rapids Hand Screw Co., Grand Rapids, Mich

Hangers, Door.
Central City Bolt Co. Syracuse, N. Y.
Coburn Trolley Track Mfg Co, Holyoke, Mass
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport Mass

Hardware Commission Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Granam, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 28 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
surpi ss, Dunn & alder, 97 Chambers St., New York.
Underhill, Clinch & Co. 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Cleveland Fdy. Co., Cleveland, O.
Coplin, Hdw. Mfg. Co., Worcester, Mass.
Cronk Hanger Co., Elmira, N. Y
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros Mfg. Co, Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Wire Goods Co., Worcester, Mass
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hog Rings and Ringers.
Blair, E., Sucyrus, Ohio.
Oakes & Irwin, Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co., Sidney, O.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt,

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Reels
Wirt & Knox Mfg. Co., Independence, Mo.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St, N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Shepard Hdw. Co. Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York
Sherwood Mfg. Co., Buffalo, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. H. & Co., Philadelphia.
Corning, Edw. & Co., 39 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. H. & Co., Philadelphia
Pilling & Crane, Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.
Wilhelm & Richards, Harrisburg, Pa.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 39 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 416 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Sprtngfield, O.
Graham, Emlen & Passmore, Phila. Pa
Heuley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Rakes.
Gibbs Mfg. Co., Canton, O.

Lawn Sprinklers.
Bonnette Arc Sprinkler Co., Bay City, Mich
Ette & Henger Mfg. Co, St. Louis Mo.
Kuperle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durnam, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath l. Mass.

Locks & Knobs, *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Brittan, Graham & Mathes Pittsburgh Pa
Canton Combination Lock Co., Canton, Ohio.
Claflen Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw Co. Reading, Pa.
Romer & Co., Newark, N. J.
Russell & Erwin Mfg. Co., N. Y. City
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Selbert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bertsch & Co., Cambridge City, Ind.
Bickford, H., Lockport, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. S., 298 Madison St., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E., Son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct
Henley Mch. Tool Works, Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
Mackinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
National Machinery Co., Tiffin, Ohio
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Phila.
Toomey, Frank, Philadelphia, Pa
Trask Milling Mch. Co., Boston, Mass.
Webster & Perks Tool Co, Greenfield, O
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Mo dant F. . C ., Chicago.
Norfolk & Western R. R.
N. . L. E. & W. R. R.
So. Bethlehem, Pa.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg.
Q & C Co, Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Machinery.
Gates Iron Wks., Chicago, Ill.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Parson, J. W. & Co., Phila.

Motors, Water and Electric.
Belknap Motor Co., Portland, Me.
Thomson-Houston Motor Co., Boston, Mass.

Muzzles.
Cincinnati Mfg. Co., Cincinnati, Ohio

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh Pa

Nail Pullers.
Peckham, F. A. & Co., Newark, N. J.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Tradite Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Detroit Dynamo Co., Detroit, Mich.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 527 to 534 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Nutmeg Grater.
Edgar Mfg. Co., Reading, Mass.

Oil Cups and Lubricators.
Sherwood Mfg. Co., Buffalo, N. Y.

Oilers.
Hammer & Co., Branford, Conn
Williams, H. A. Mfg. Co., Boston, Mass

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

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Seibert Cylinder Oil Cup Co., Boston Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R., Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Philadelphia, Pa.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co , Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co , Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Kalk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., *makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Gibbs Mfg. Co , Canton, O.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Long & Allstatter Co., Hamilton, Ohio.
Jenains & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.
Wheeler, Frank, Meriden, Conn

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Merider.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pruning Shears.
Henry, Jno. T. & Son, Hamden, Conn.

Pulley Fixings.
Foley, J. W. & Co., Cincinnati, O.

Pulleys.
Reeves Pulley Co., Columbus, O.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Wais & Roos Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Brumell, Schmidt & Co., Ltd., York, Pa.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 125 Duane St., N. Y.
Curley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 91 Chambers, N. Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Northern Refrigerator Co., Grand Rapids, Mich.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt. Jno. & Sons, New Haven, Conn.

Rock Breakers.
Gates Iron Works Chicago, Ill.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel,
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh,
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O
Johns, H. W. Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich,
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Univer al Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co , Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N. Y.
National Saw Co., 96-98 Reade t, N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co , Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N. Y.
Riehle Bros. Testing Mch. Co., Philadelphia.

Screens, Door and Window.
Phillips, A. J. & Co., Fenton, Mich.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago Ill.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St , N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Union Hardware Co., Torrington, Conn
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Heni y, M. C , Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N.Y.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 92 Reckman, N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co , Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co. Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Binghamton Wire Goods Co., Binghamton, N. Y.
Cobb & Drew, Plymouth, Mass.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 52 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermman & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., Ld, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co , Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill.
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N. Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

(See Alphabetical Index, Page 146.)

Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.

Tack Hammers.
Richardson, J. C. & Co., Ridgway, Pa.

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Dissoway & Henderson, 165 Green wich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros. Testing Mch. Co., Phila.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Tire Cement.
Am. Trading Co., 182 Front, st., N. Y.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Cincinnati Tool Co., Cincinnati, O.
Frav, Jno. S. & Co., Bridgeport, Conn
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.
Tower & Lyon, 95 Chambers St., N. Y.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Butts & Gardway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tube Scrapers.
Johns, H. W. Mfg. Co., 87 Maiden Lane

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Shelby Steel Tube Co., Shelby, O.
Spiral Weld Tube Co., 9 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Central Iron & Steel Co., Brazil, Ind.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilating Fans.
Huyett & Smith Mfg. Co., Detroit, Mich

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.
Tower & Lyon, 95 Chambers St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg.Co., Farmer Village, N.Y.
Robertson, O. H., Forestville, Conn.

Washers.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Washing Machines.
Diether & Barrow, Ft. Wayne, Ind.
Wayne, Anthony Mfg. Co., Ft. Wayne

Water Heaters.
Kemp, Clarence M., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Weaners.
Kees, F. D., Beatrice, Neb.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheels.
Arnold Metal Wheel Co., New London, Ohio.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Blinds.
Durstine, Jacob, Wooster, O.

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Miller & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass

Wire Cloth Holders.
Hosford, John, Monroeville, O.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 Jonn, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Fence Stretchers.
Wire Fence Supply Co., Indianapolis, Ind.

Wire Goods. *Manufacturers of*
Brooks, M. S. & Sons, Chester, Conn
Cincinnati Mfg. Co., Cincinnati, Ohio
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
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Wire Nail and Tack Machines
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Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill.
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel
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Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wire, Spool.
Malin & Co., Cleveland, O.

Wood Mantels.
Ironton Wood Mantel Co., Ironton, O

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Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls N. Y.

Wrapping Paper.
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Wrenches. *Manufacturers of.*
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Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
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Williams, J. H., Brooklyn, N. Y.

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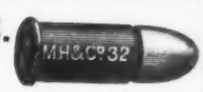

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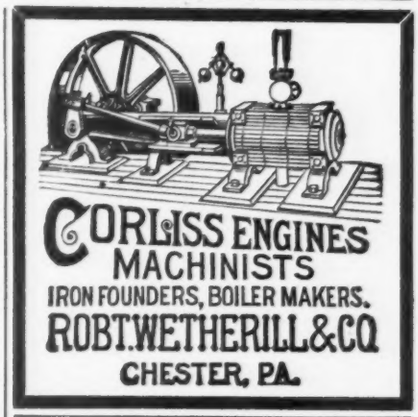

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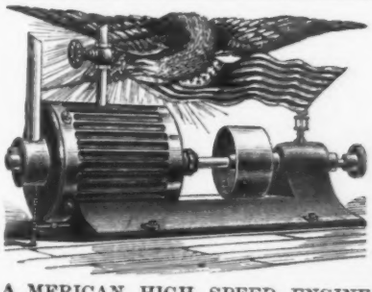

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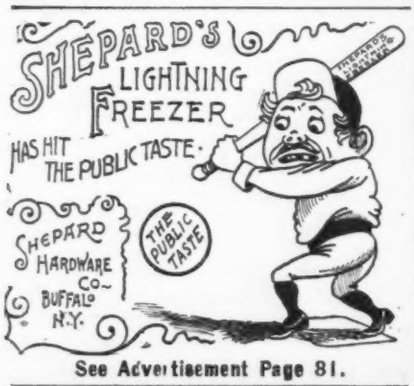

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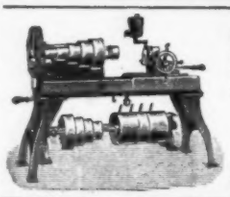

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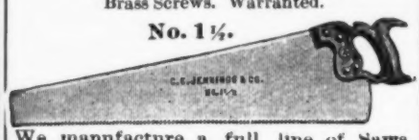

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Vol. XLIX: No. 19. *New York, Thursday, May 12, 1892.* $4.50 a Year, including Postage. Single Copies, Ten Cents.

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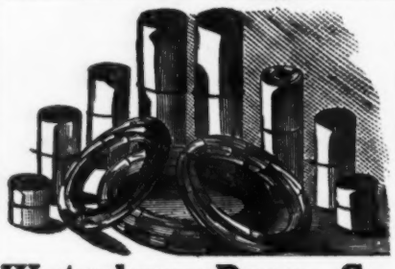
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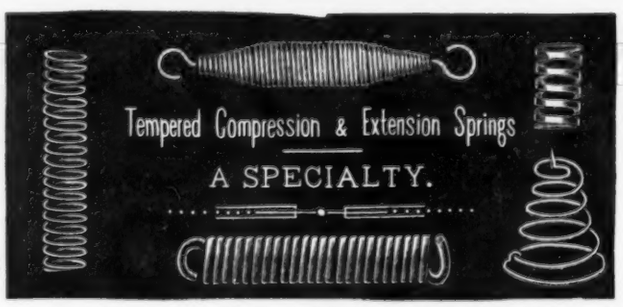

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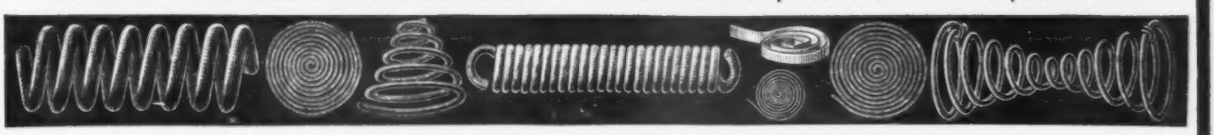

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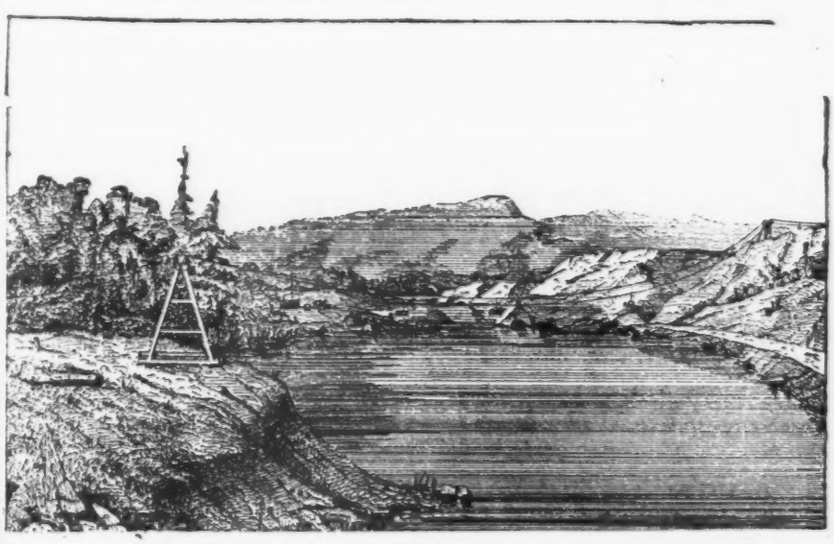

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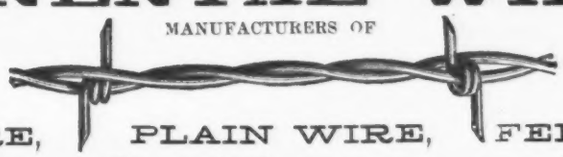

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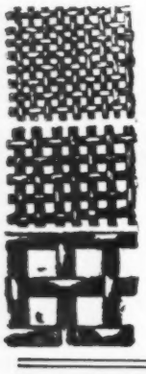

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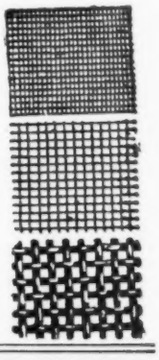

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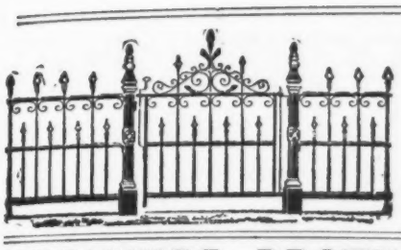

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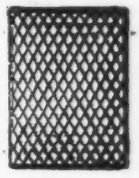

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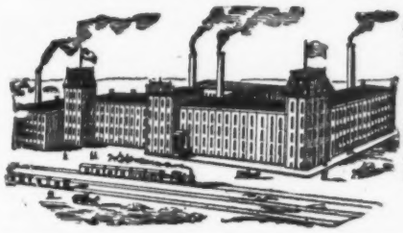

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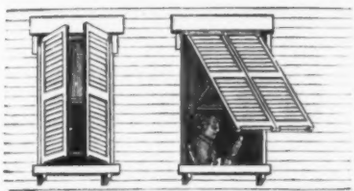

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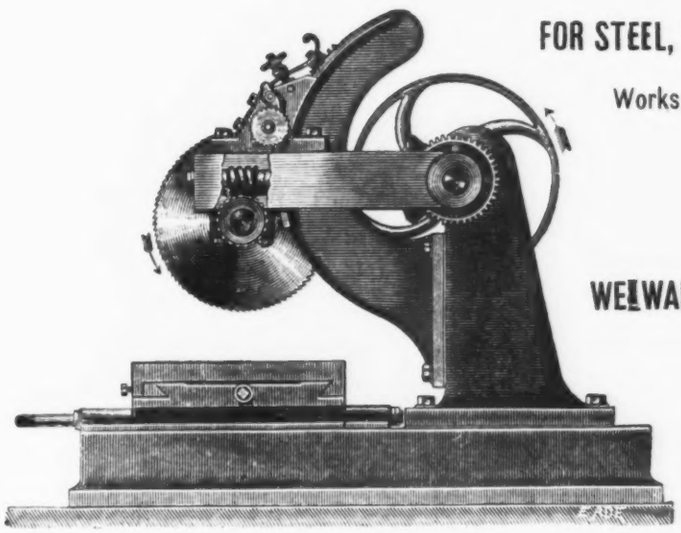

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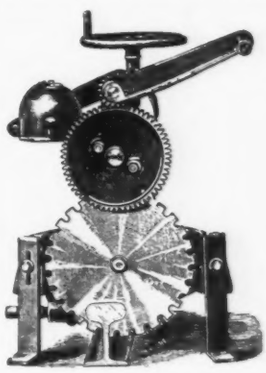

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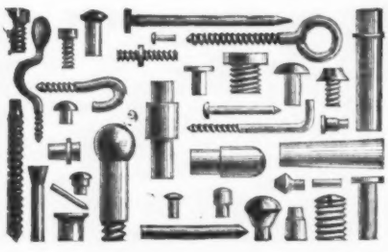

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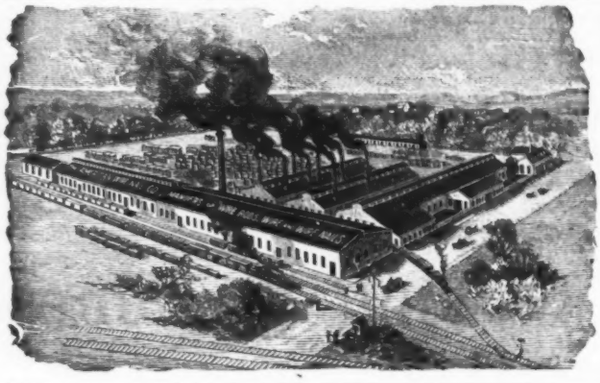

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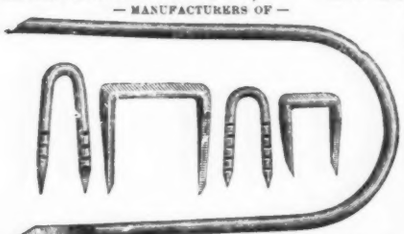

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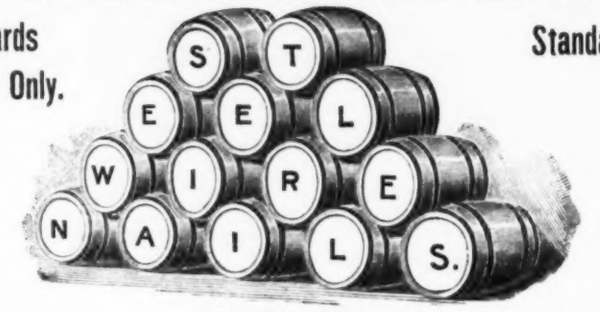

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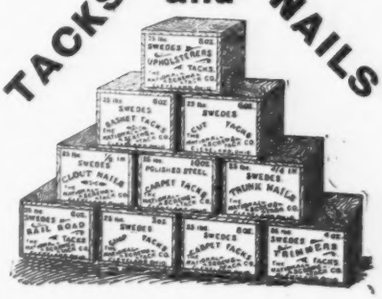

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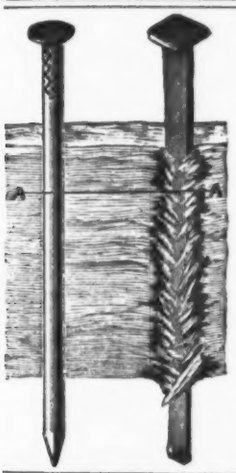

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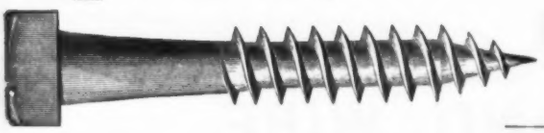

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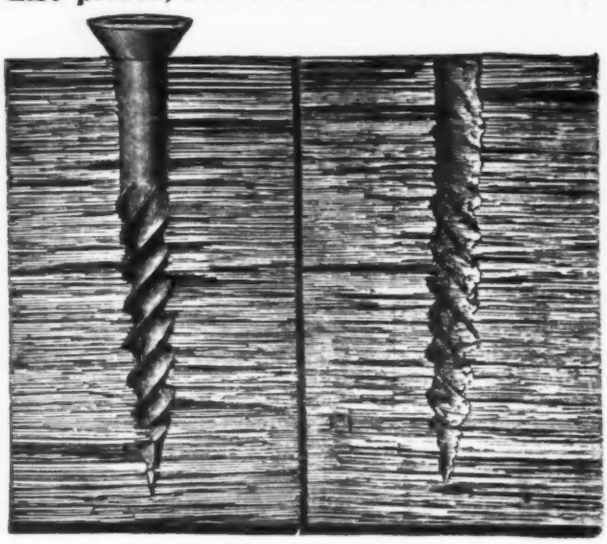

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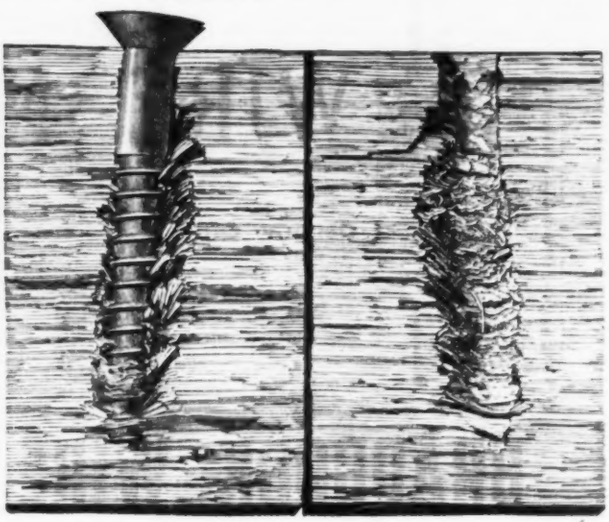

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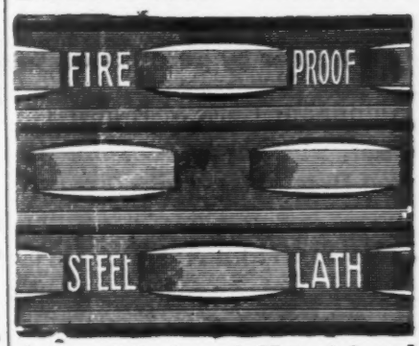

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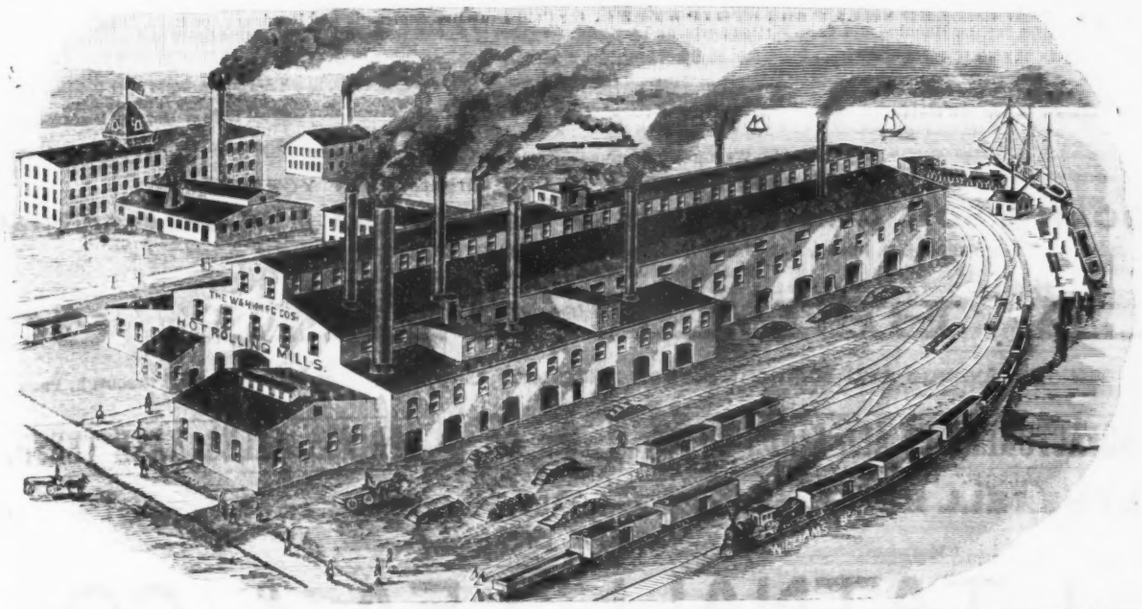

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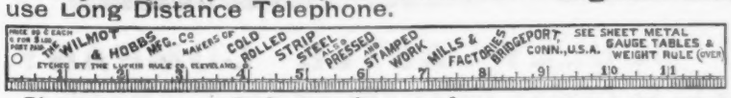

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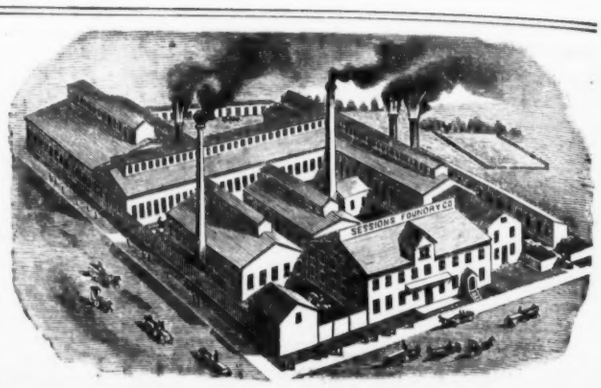

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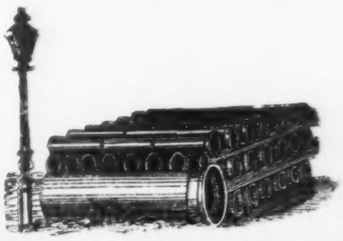

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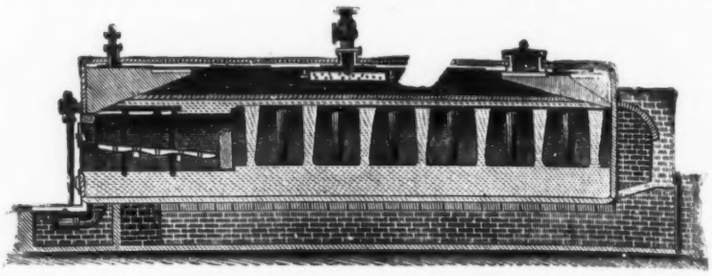

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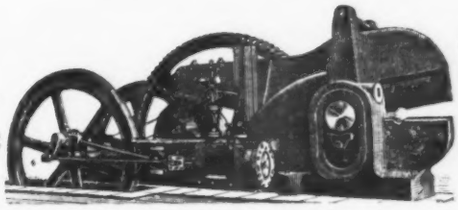

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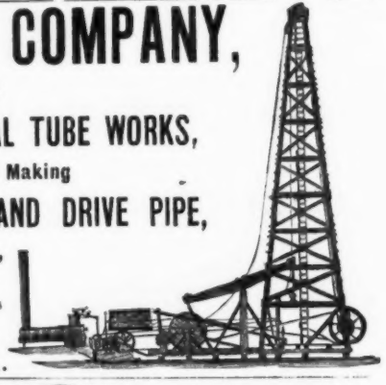

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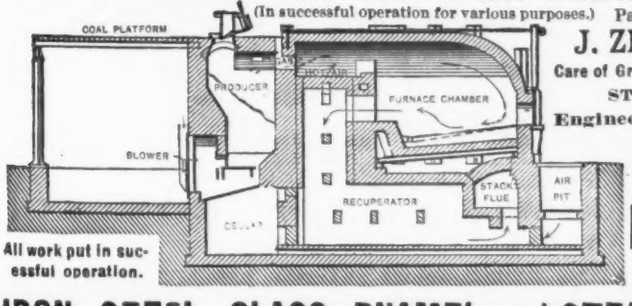

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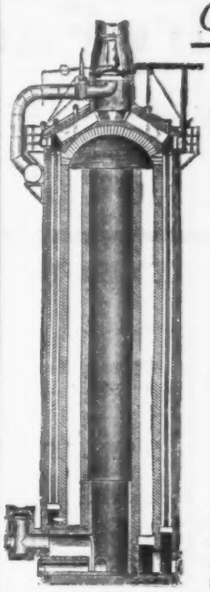

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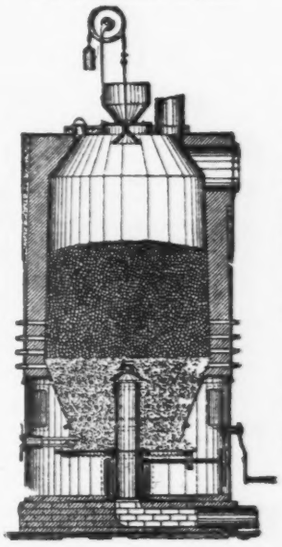

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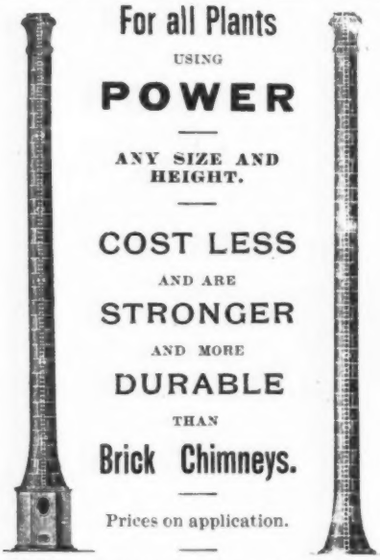

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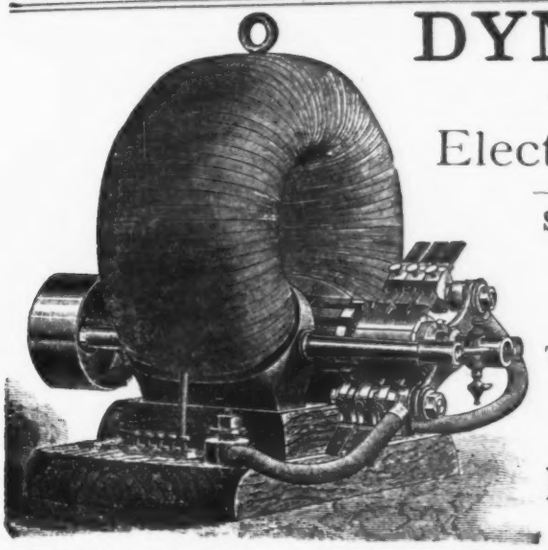

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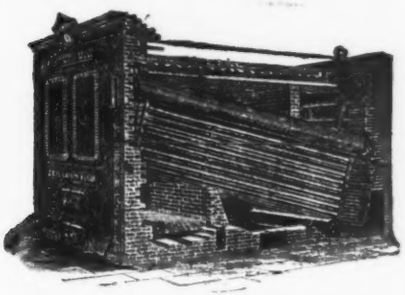

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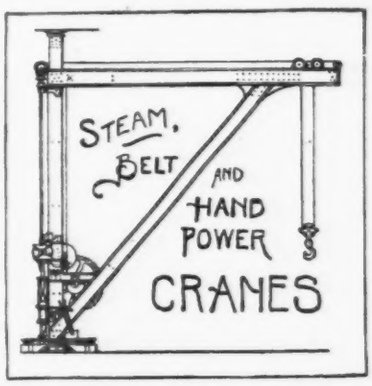

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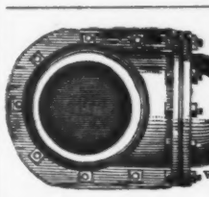

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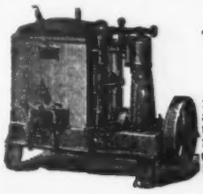

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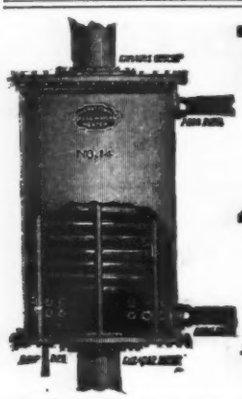

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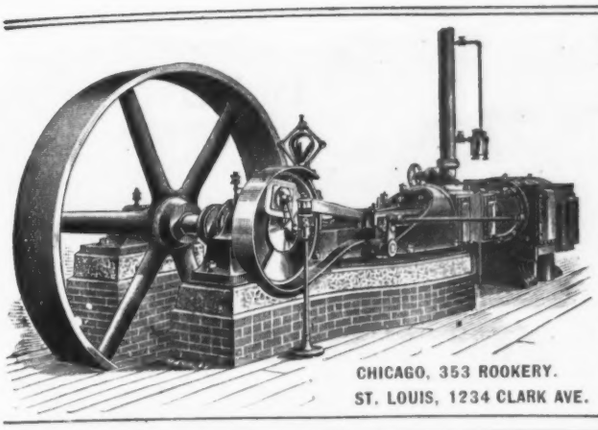

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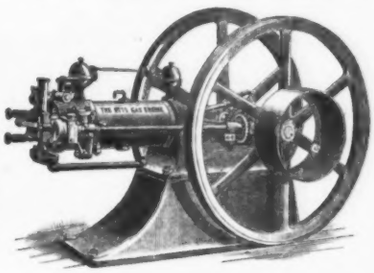

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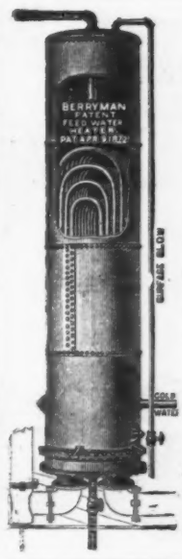

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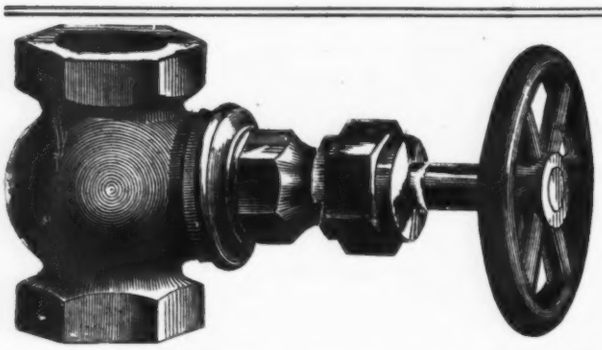

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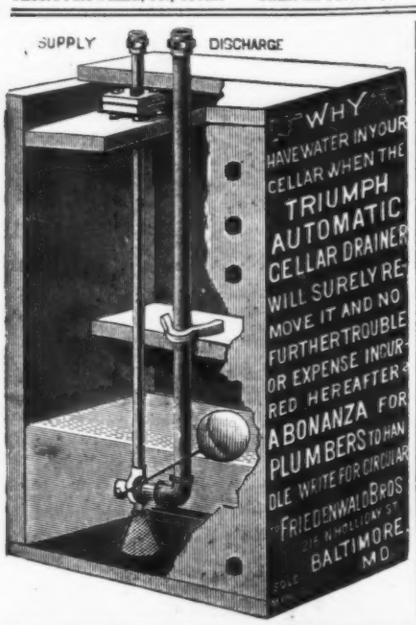

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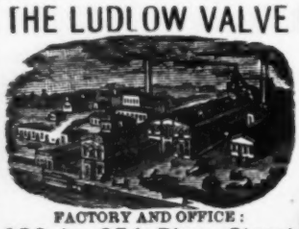

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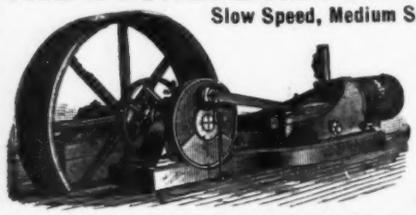

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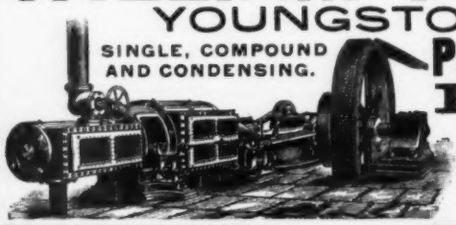

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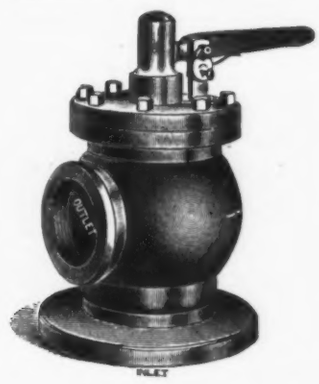

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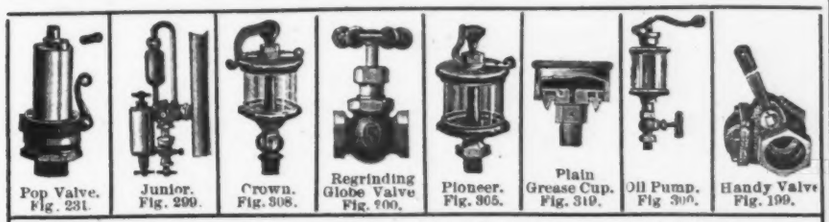

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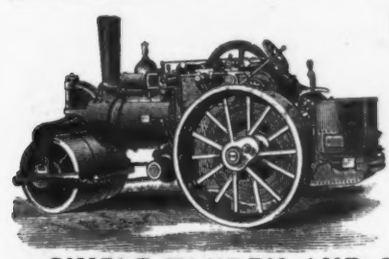

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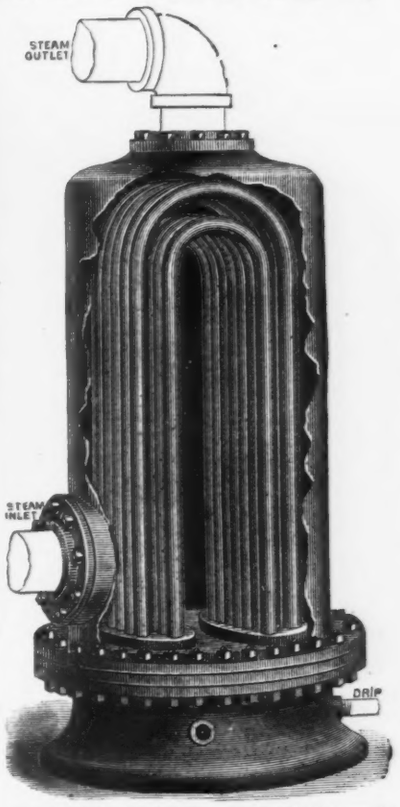

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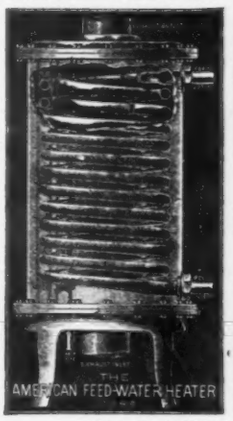

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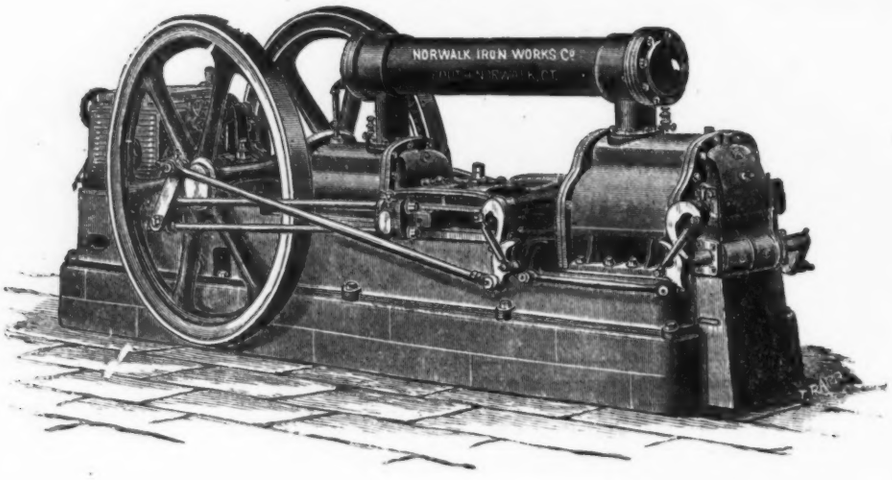

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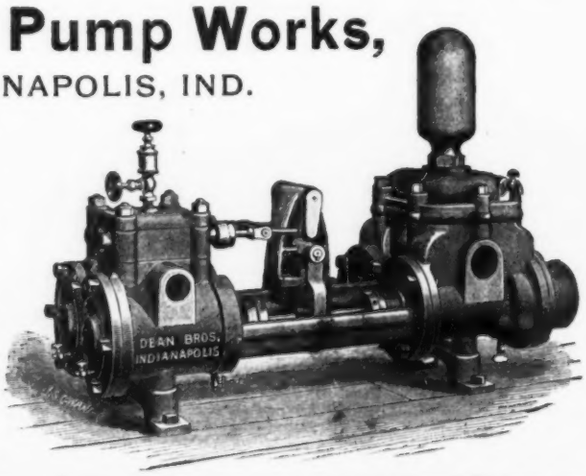

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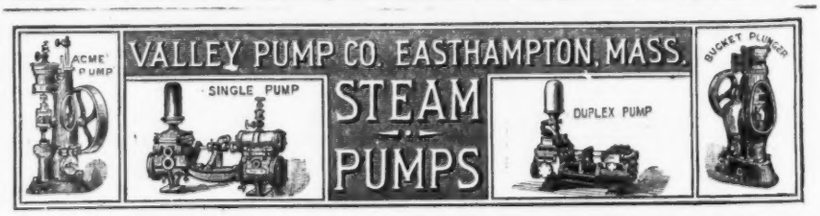

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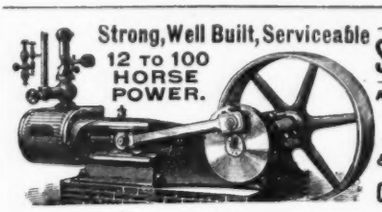

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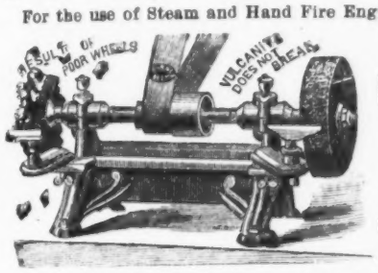

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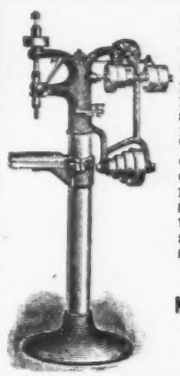

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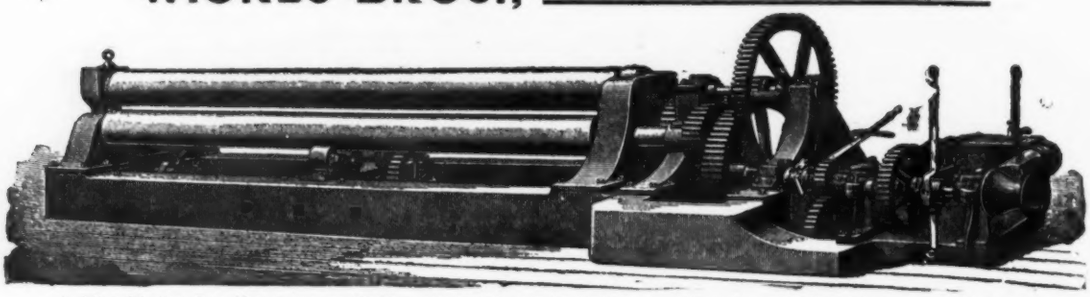

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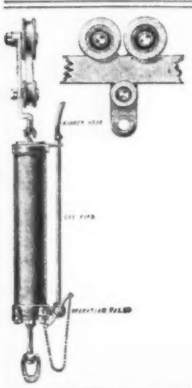

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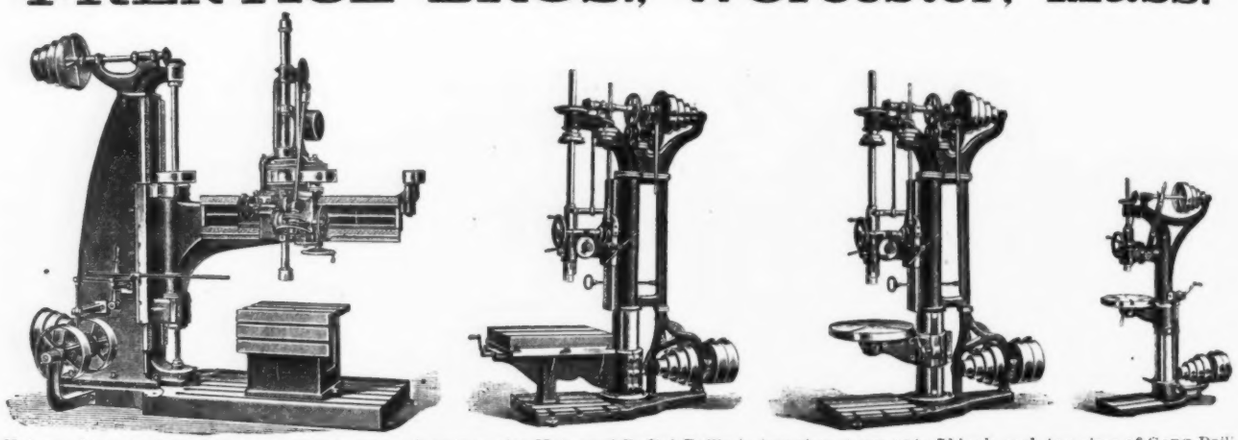

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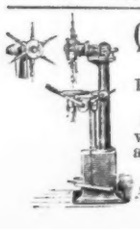

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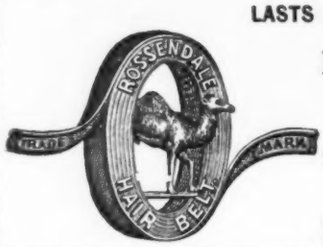

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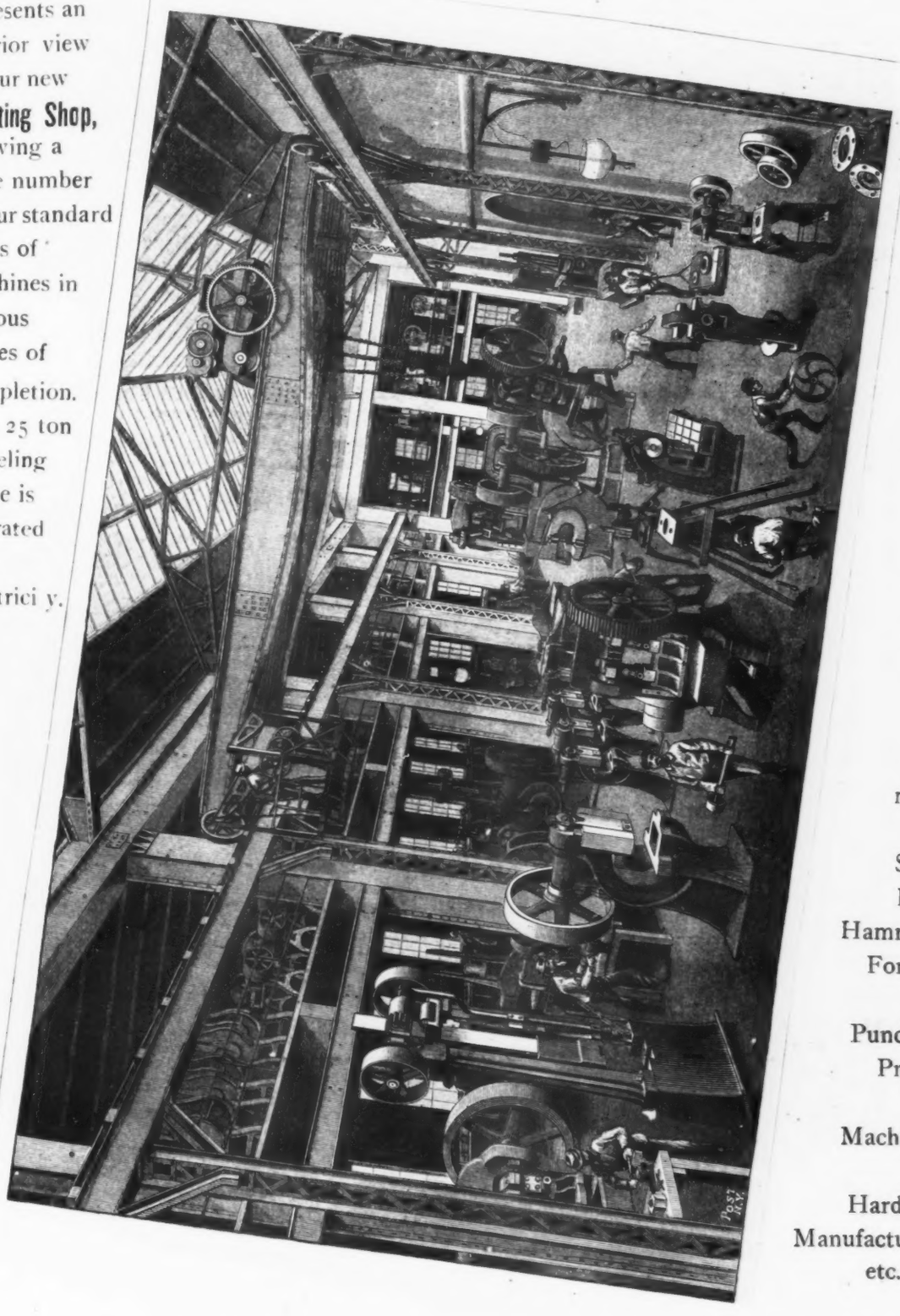

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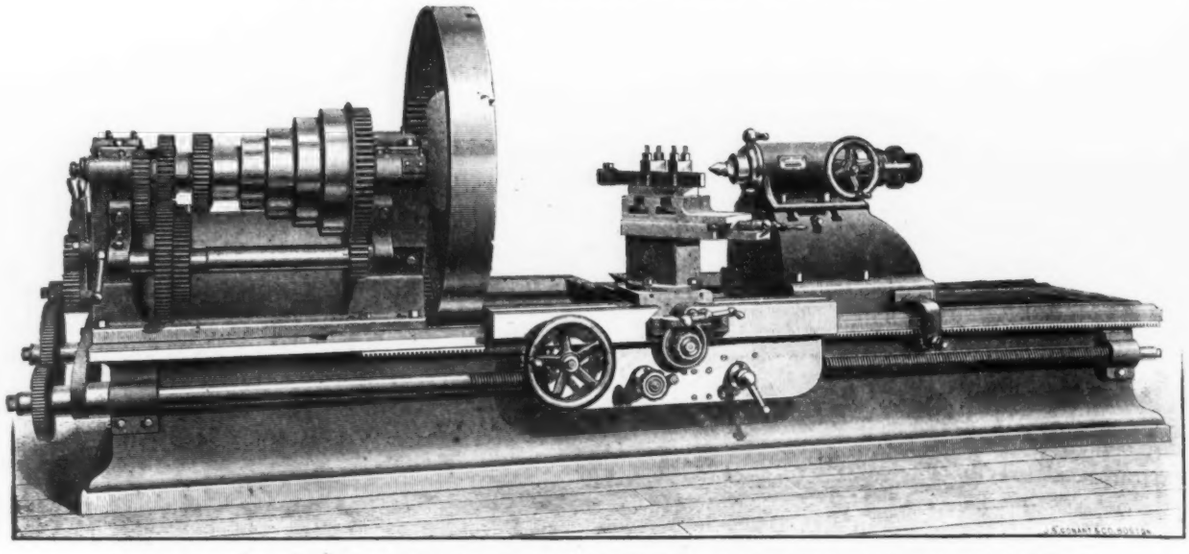

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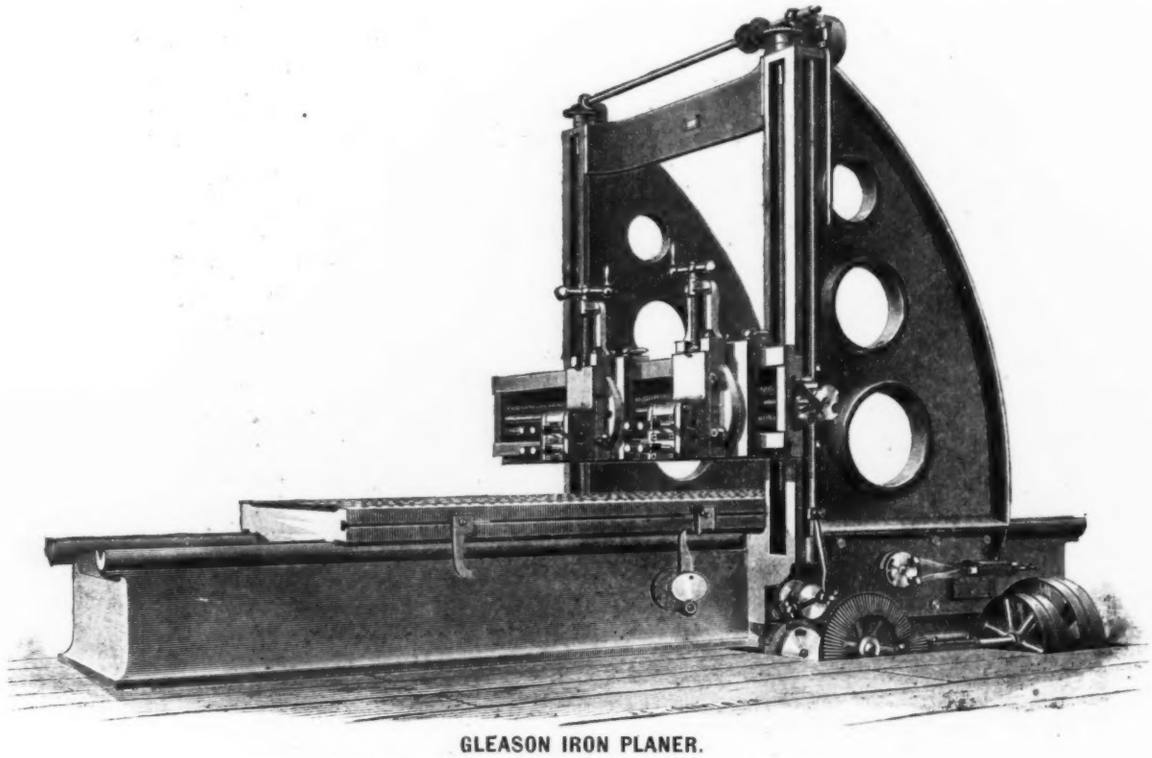

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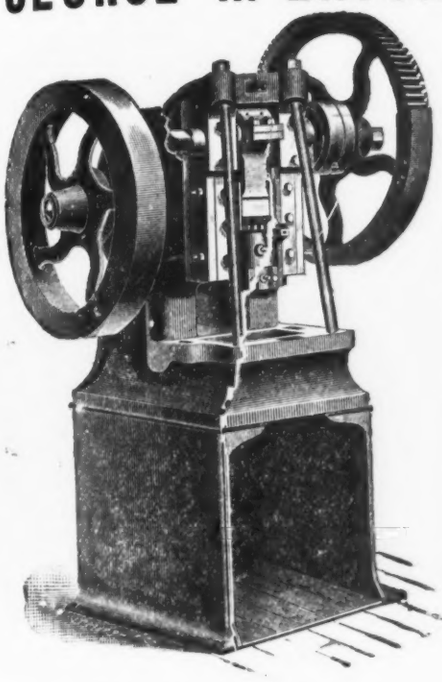

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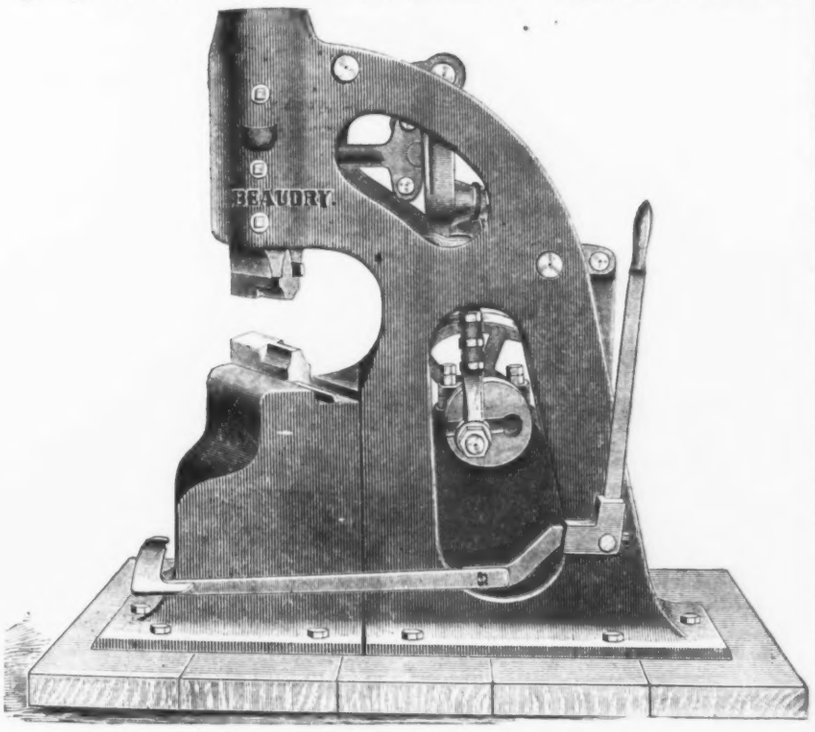

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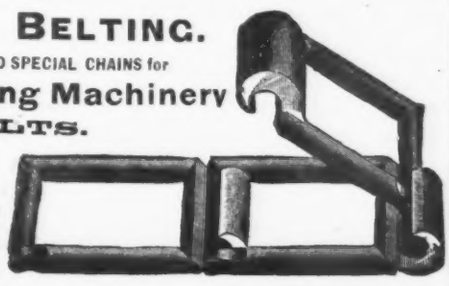

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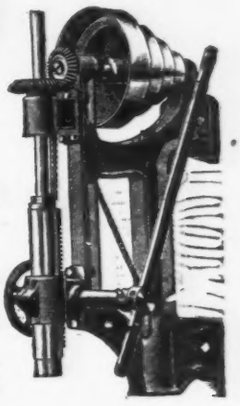

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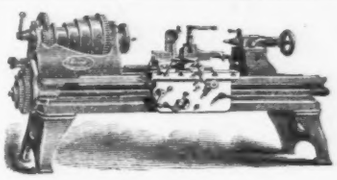

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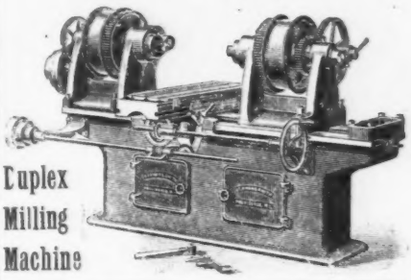

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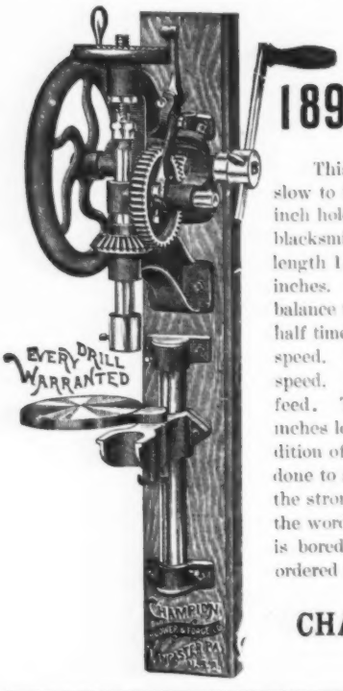

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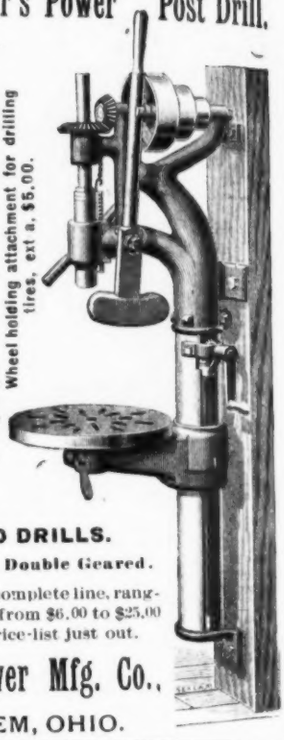

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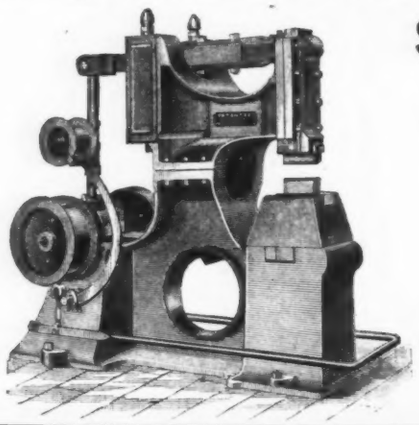

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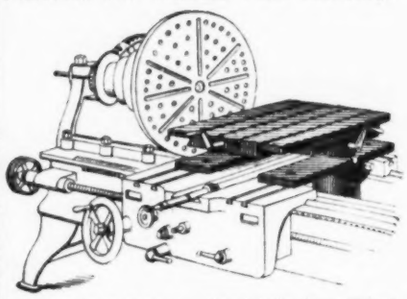

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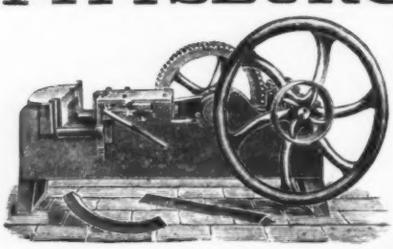

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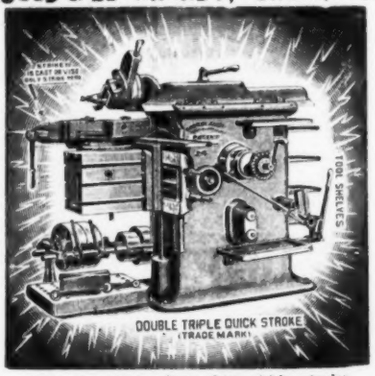

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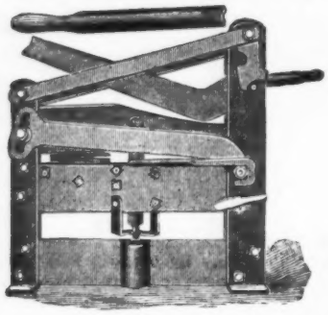

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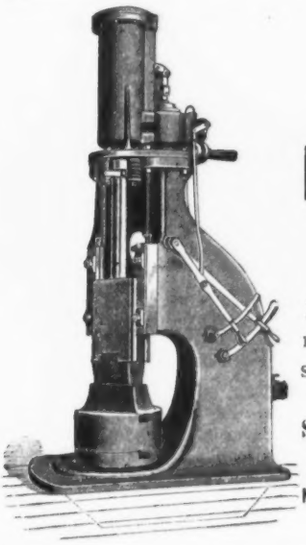

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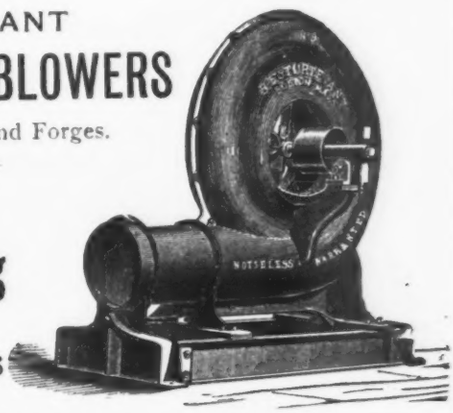

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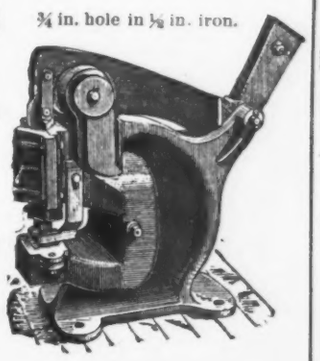

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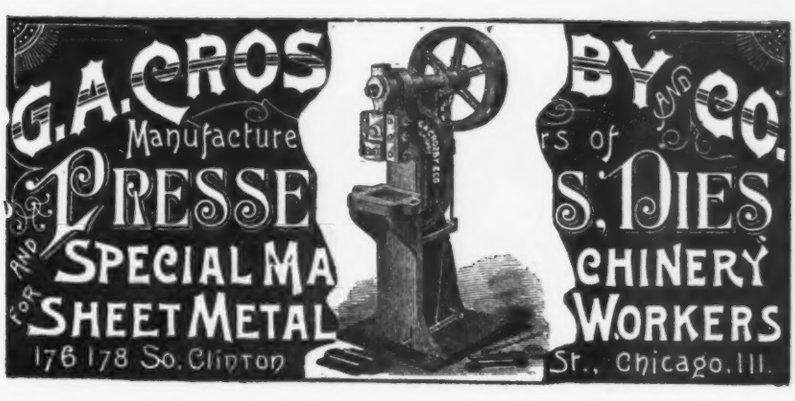

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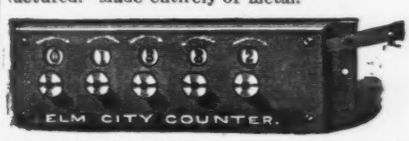

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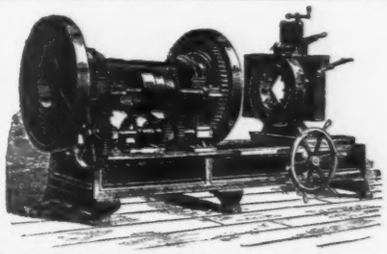

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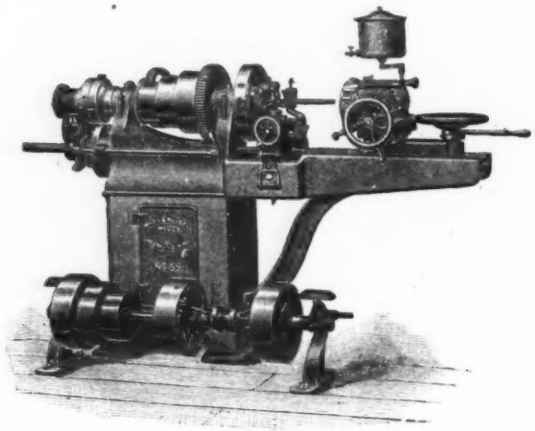

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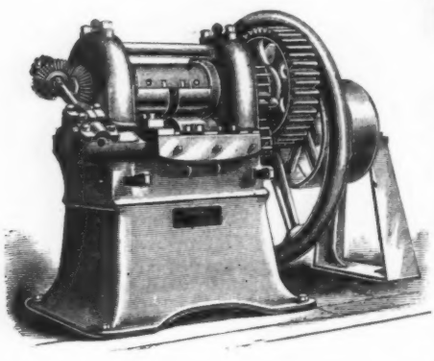

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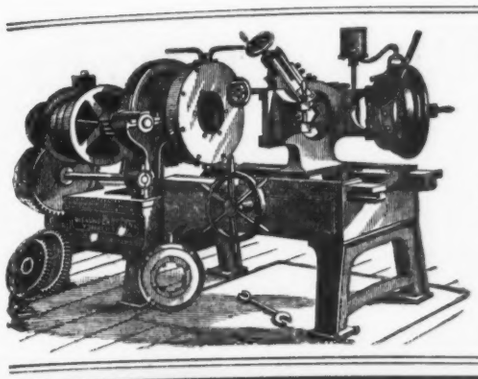

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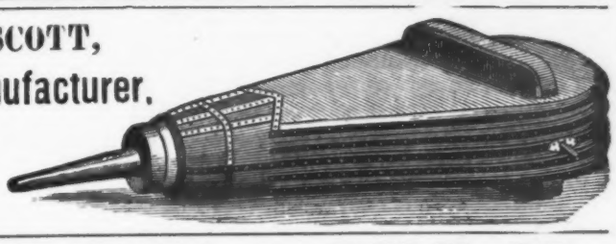

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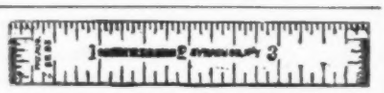

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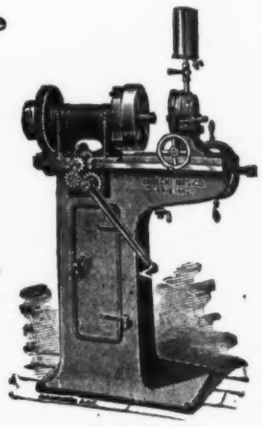

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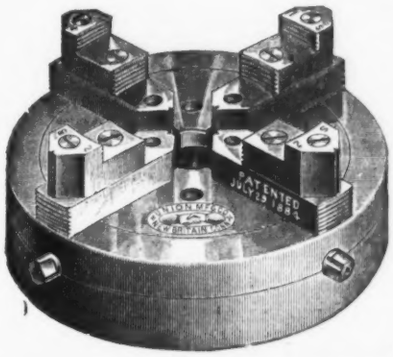

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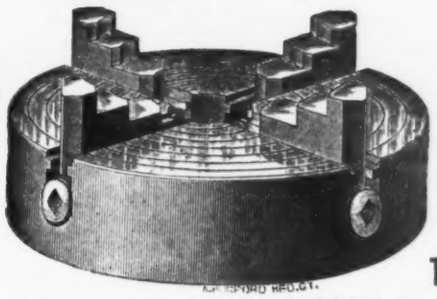

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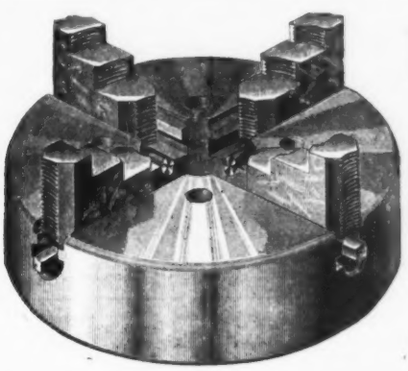

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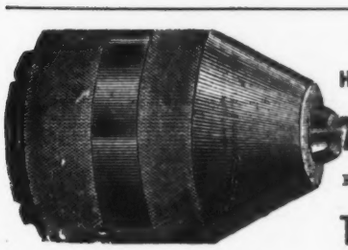

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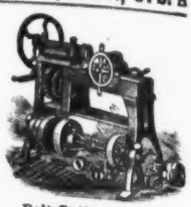

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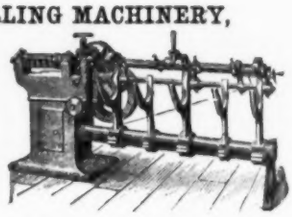

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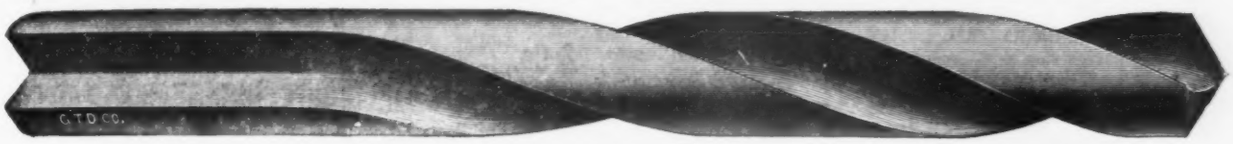

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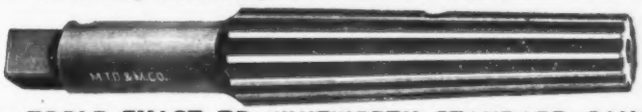

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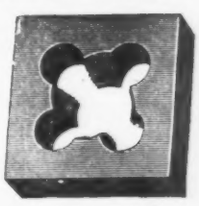

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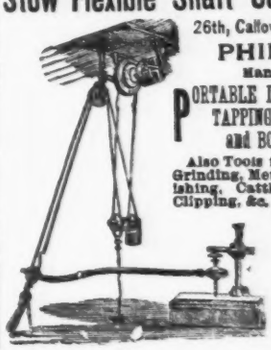

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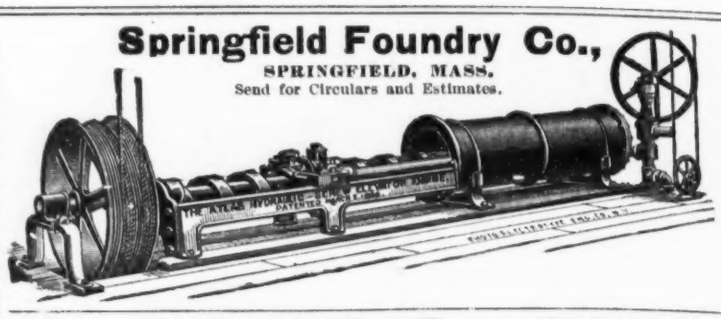

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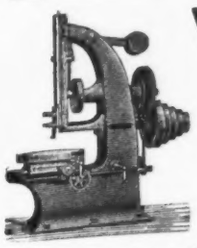

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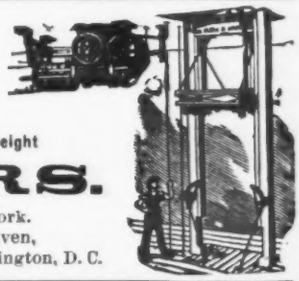

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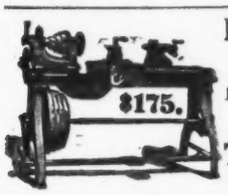

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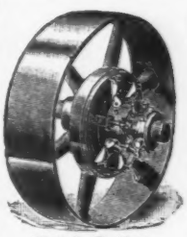

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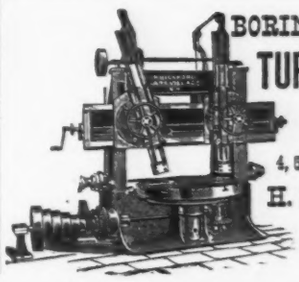

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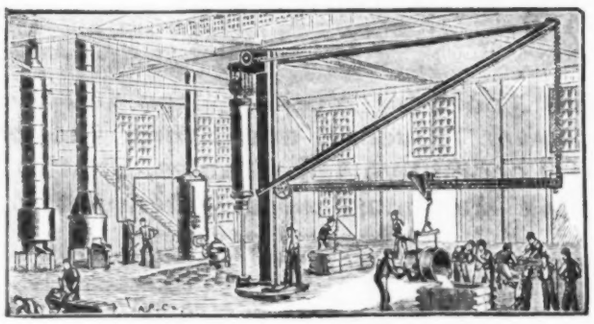

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Does not require skilled labor to cut key way or fit key.

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A man will fit more than double the number of keys in a day than by the ordinary method.

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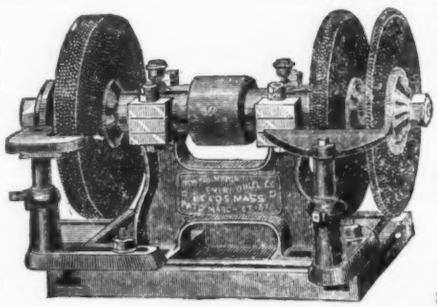

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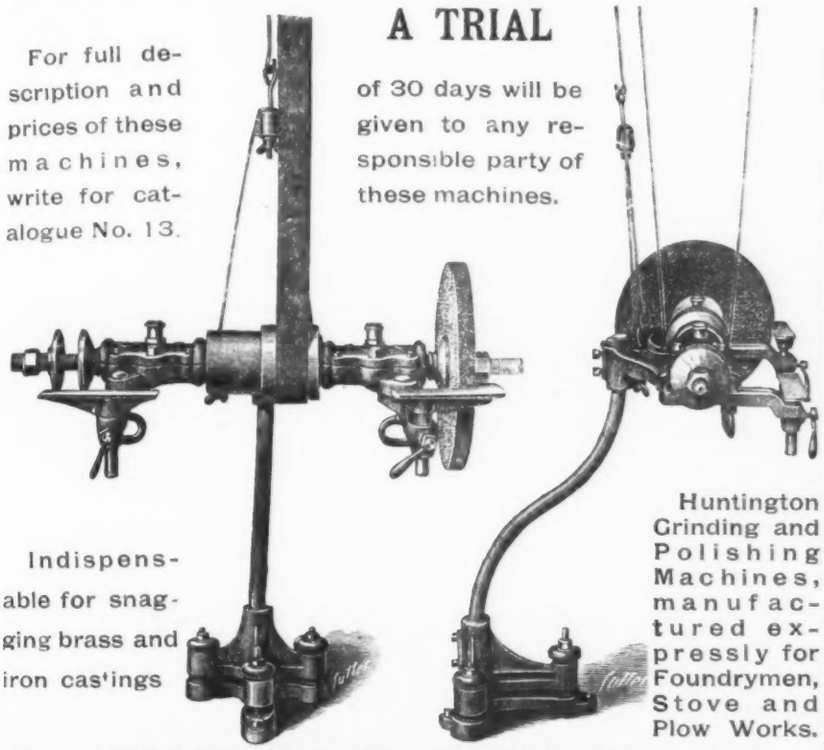

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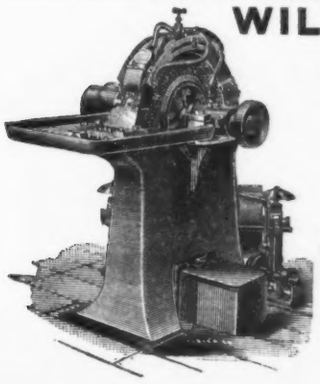

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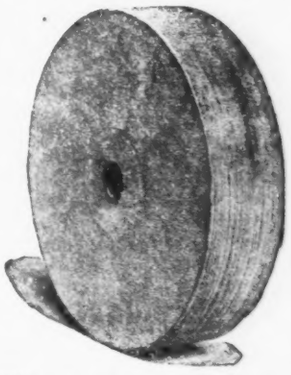

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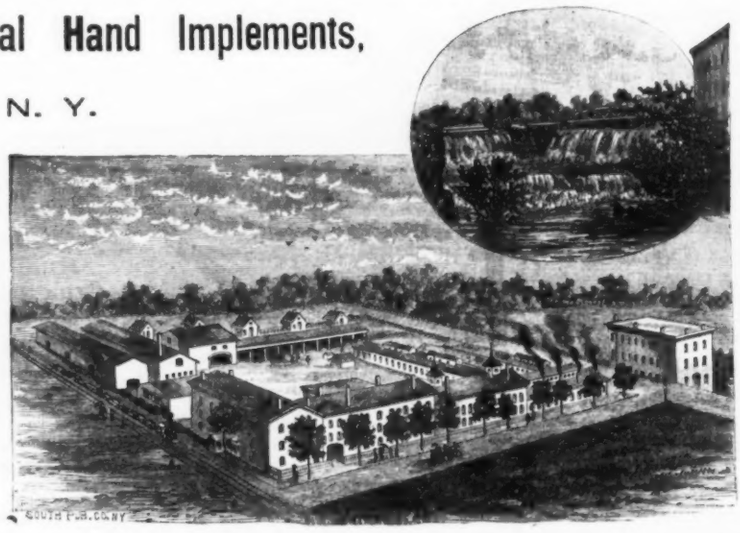

The Stockholders of this Company have decided to offer its manufacturing plant and machinery for sale.

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It has magnificent water privileges, 300 Horse Power, supplemented by a modern Steam Plant of 250 Horse Power added in 1888, but scarcely used since then, as Water Power has been ample. Steam plant is in perfect condition.

The Plant is located on the line of the New York Central Railroad, as shown in cut, and but a few rods distant from Lehigh Valley Railroad, thus affording unequaled shipping facilities.

It will be offered for about one-third the original cost of construction.

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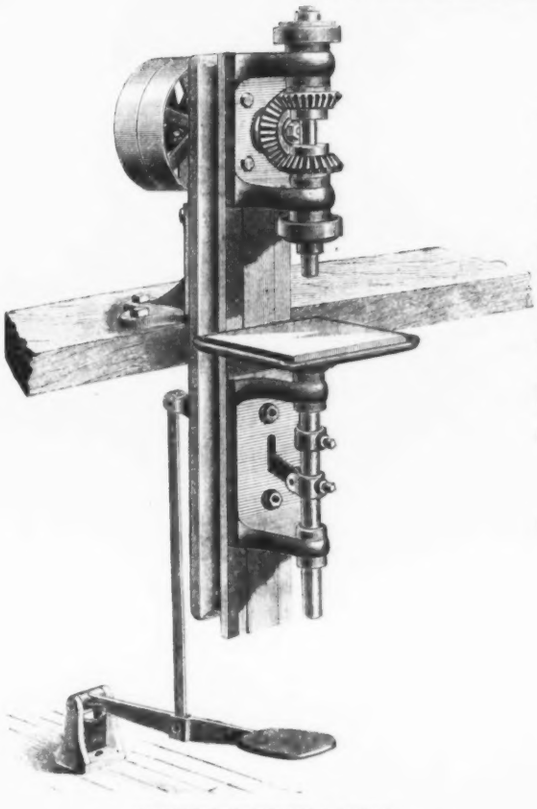

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DESIGNED for tapping holes one-eighth to three-eighths in diameter, in work not more than eight inches high. The table for receiving the work is eight by ten inches, with a vertical adjustment of eight inches. The spindle is of steel, and can be made to fit any chuck desired. We are prepared to furnish horizontal tapping machines also, and at short notice.

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Two Valuable Manufacturing Plants

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Located in Tallapoosa, Haralson County, Georgia.

These plants, practically new, costing $150,000 and $60,000 respectively, will be sold without reserve to the highest legitimate bidder agreeing to operate them within one year from date of sale. Terms 1-10 cash, 4-10 in two weeks, and balance to suit purchaser. Both have an established trade, and reason for selling is lack of capital by the owners to operate them intelligently.

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PIEDMONT GLASS WORKS is a 12 pot furnace and 6 ton green tank, with all tools, material and appliances for flasks, bottles and prescription ware. The only plant south of the Ohio River and controls the Southern trade.

Sale made by authority of the stockholders of the company, at last annual meeting, and the plants will be sold without regard to cost or value; the object being to have them operated in the city where the Company's real estate is located. Description and inventory on application.

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An absolutely positive device for separating, cleaning and saving all shot and scale iron from foundry refuse.

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Cast Iron Successfully Tinned.

We are prepared to put in successful operation Tinning Plants for the above named purpose.

THIS IS NO EXPERIMENT,

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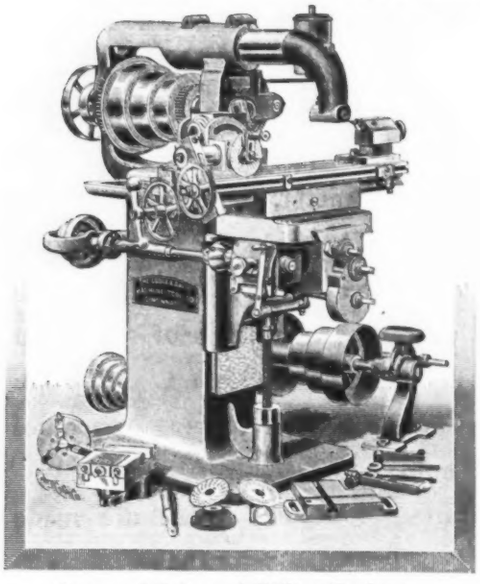

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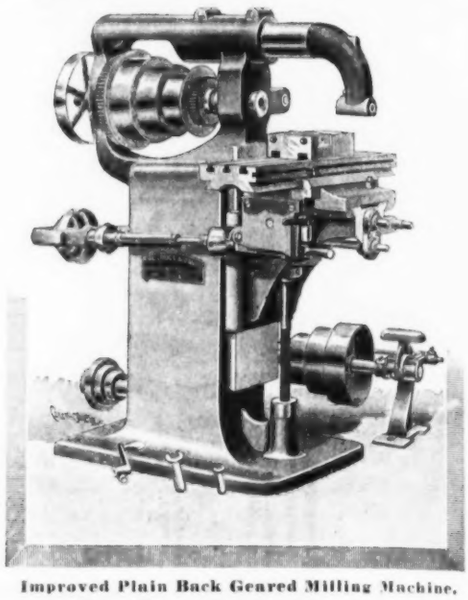

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COMPLETE MACHINE SHOP EQUIPMENTS.

BROWN & SHARPE MFG. CO.,

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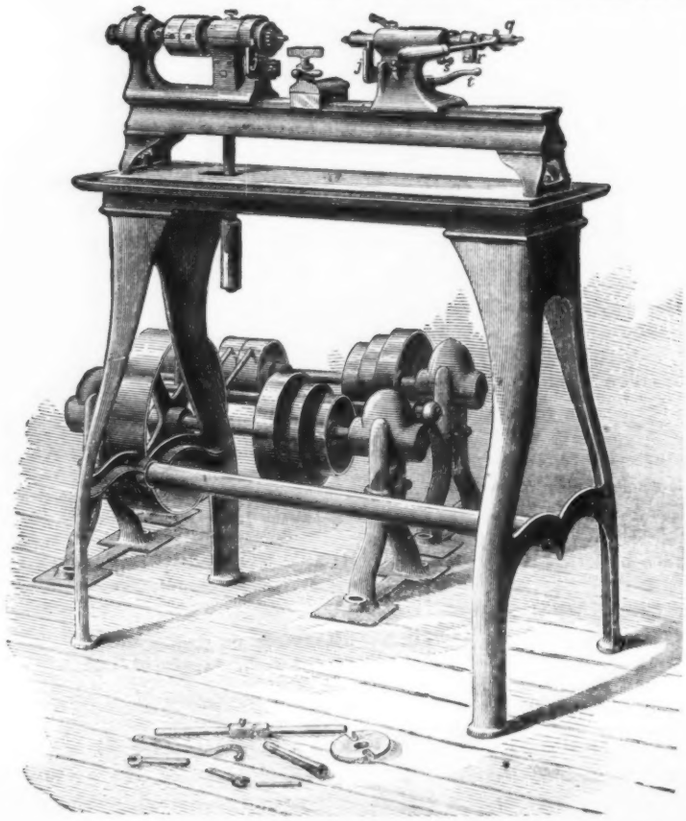

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FOR GENERAL MACHINE SHOP USE.

The economy and advantage of using this Lathe are not always thoroughly understood. The amount of work that can be done on it is not always fully appreciated.

Special 38 page pamphlet mailed on application.

The Machines and Tools described in catalogue are usually kept in stock.

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1 Heavy Shear, to cut 1 in. x 6 in. Bement.
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3 24 x 24 x 5 Iron Planers, Lathe & Morse.
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1 20 x 20 x 4 " "
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1 36 x 36 x 16 Planer, Whitcomb.
1 36 x 36 x 24 " "
1 52 x 36 x 12 " Rochester.
1 27 x 12 Lathe, New Haven.
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15 in. and 20 in. Crank Shapers.
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Universal and Plain Milling Machines.
Plain and Universal Radial Drills.
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66 in. x 24 ft. Heavy Pattern. For boring Stationary and Marine Engine Cylinders. Low price.
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Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 24 ft., triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

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Square Arbor Fox Lathes, 14 in. x 5 ft.; 15 in. x 6 ft; 18 in. x 6.

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No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
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No. 5 and 6 " " " " clutch back gear.

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72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-hand.
60 in. Vertical Boring Mill. Second-hand. L. W. Pond.

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Planer, modern, almost new, 34 x 30 x 8 ft.	$675.00
" " " " 22 x 20 x 4½ ft	350.00
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Engines, Boilers, Pumps, Shafting, Hangers and Machinery.

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1 Planer, planes 3 ft. 15 in. x 12 in. Gould.
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1 Engine Lathe 10 ft. bed, 25 in. swing, raised to 32 in
1 Engine Lathe, 10 ft. bed, 28 in. swing. Ames make.
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Phœnix Automatic Engine 10 in. x 12 in.
Phœnix Automatic Engine 15 in. x 16 in.
F. McSWEGAN, Dover St., and Franklin Square, N. Y.

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17 in. x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17½ in. x 4 ft. Engine Lathe, screw back, double T rest.
17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
17½ in. x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 10 ft. Engine Lathe, screw back, double T rest, cross feed.
22 in. x 10 ft. Engine Lathe, screw front, double T rest.
25 in. x 14 ft. Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1⅜ in. holes with 12 in. diam. 3-jaw combination chuck.
13 in. x 6 ft. Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No. 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

PENNSYLVANIA MACHINE CO., Ltd.,

31 N. Seventh St., Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

5 clay and ore pans, 11 rail, bar, sheet and clipping shears, 23 hoisting engines, 41 stationary and portable boilers, 48 stationary and portable engines, 12 steam and 9 centrifugal pumps, 3 air compressors, one standard gauge road engine and one standard gauge shifting engine.

THOMAS CARLIN'S SONS,

Allegheny, Pa.

DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¼ x 10 in., with Double Drums, Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

FRANK TOOMEY,
131 North 3d St., Philadelphia, Pa.

FOR IMMEDIATE DELIVERY.

1 15 H.-P. Double Cylinder, Double Friction Drum, Horizontal Hoisting Engine, with Boiler complete. New.
1 Each 15 and 20 H.-P. Detached Portable Engine. Erie City Iron Works
1 Each 15, 25 and 35 H.-P. Self Contained Engine. Chandler & Taylor. New.
1 25 H.-P. Weston Engine. High Speed. First-class Order.
1 35 H.-P. Straight Line Engine. Good order.
1 18 H.-P. Engine.
1 15 H.-P. Ames Engine No. 1 order.
1 10 H.-P. Automatic High Speed Engine New.
1 10 H.-P. Horizontal Engine. Good order.
1 8 H.-P. Horizontal Engine, Good order
1 6 H.-P. Horizontal Engine. Good order.
2 5 H.-P. Horizontal Engines. New and complete.
1 Each Combination Vertical Engine and Boiler 3, 5, 7, 10 and 12 H.-P. New.
1 Each Excelsior Engine and Boiler Mounted 5, 6 and 8 H.-P. New.
1 5 H.-P. Payne Automatic Engine and Boiler. First-class order.
1 3 H.-P. Baxter Engine and Boiler. First-class order.
1 2 H.-P. Vertical Engine and Boiler. New.
1 2 H.-P Shipman Engine and Boiler. Good order.
1 1 H.-P. Shipman Engine and Boiler Fair order.
1 Each 20, 25, 30, 35, 45 and 50 H.-P. Horizontal Boilers. New. Erie City Iron Works.
1 60 H.-P. Second-Hand Boiler, Good order.
1 Each Champion, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 Each Champion Steel Pressure, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 Each Champion Exhaust Fan, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 No. 8 Cupola Blower, Sturtevant Good as New.
1 No. 6 Boston Blower. Good as New.
1 Gear Cutter, Gould. In good order.
1 Dynamo, 250 light. Good order.
1 Riehle Transverse Testing Machine with Indicator. Capacity 5000. New.
1 Tapping Machine. Woodward & Rogers New.
1 Shear and Punch combined. Light Machine. New.
1 Nut and Washer Punch. Cheap
1 Lot Wire Drawing Machines. Very cheap.
1 Lot Nail Making Machines Very cheap.
1 Large Sorgum Roller. Weight 16,000 lbs. Very low.
1 44 in. Boring Lathe. Good as New.
1 36 in. Cupola, Blower, Rattler and Ladles. Good as New.
1 Power Chain Hoist, with Heavy Chain Complete.
1 Grindstone with Iron Frame. Cheap.

Send for List of Lathes, Drills, Planers, &c., for prompt delivery.

W. P. DAVIS,
Rochester, N. Y.

See List of New Machinery next issue.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spinning Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 20 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,
143 Liberty Street, N. Y. City.

BARGAINS FOR CASH.
Write for Prices.

1 32 in. Lathe, 5 ft. bed.
1 24 in. Lathe, 10 ft. bed.
1 24 x 24 x 7 ft. Planer.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 28 in. Lathe 15½ ft. bed.
1 14 in. Lathe, 6 ft. bed.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " "
2 42 in. x 11 ft. " Boilers "
1 22 in. Niles Drill Press.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " " "
1 4 H.-P. Baxter Engine and Boiler.
1 15 H.-P. Shapely " " "
2 36 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P. Horizontal Engines and Boilers. New and Second-hand.
1 20 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft. Porter Lathe. New.
1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

LOVEGROVE & CO.,
Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,
156 Oliver Street, Boston, Mass.

FOR SALE.

Four 100 H.-P. Horizontal Tubular Boilers.
Two 80 H.-P. Horizontal Tubular Boilers.
One 75 H.-P. Horizontal Tubular Boiler.
Two 60 H.-P. Horizontal Tubular Boilers.
One 40 H.-P. Horizontal Tubular Boiler.
One 50 H.-P. Locomotive Fire Box Boiler.
Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.
D. B. CRUICKSHANK,
243 Dyer Street, Providence, R. I.

Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,
123 N. Third St., Philadelphia.

50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., rates at 65 Revolutions. Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. Made by C. H. Brown & Co.

A Great Big Bargain.

THE SCRANTON SUPPLY AND MACHINERY CO.,
Scranton, Pa.

Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

WM. H. PERRY & CO.,
Providence, R. I.

FOR SALE.

New and Second-Hand

METAL WORKING

MACHINERY.

Send for list of same for immediate delivery.

Wanted to Purchase for Cash,

Second-Hand

Metal Working Machinery.

Geo. Place Mch. Co.,
120 Broadway, New York.

VERTICAL BLOWING ENGINE FOR SALE.

30 in. diam. steam cylinder, 62 in. air cylinder, stroke 5 feet, in good condition. Price reasonable.

ROCK DRILLS 5 in. to 1¾ in.; LIGHT LOCOMOTIVE 36 in. gauge; STEAM SHOVEL; AIR COMPRESSORS.

F. W. IREDELL,
10 Park Place, New York.

900 Tons New Cast Iron

WATER PIPE

10, 14, 16, 16½ and 20 inch.

At a Big Sacrifice.

Speak Quick If You Want It.

Thos. P. Conard,
206 Walnut Place, Philadelphia.

FOR SALE.
SECOND-HAND.

1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

The Powell Planer Co.,
Worcester. Mass.

FOR SALE.

WAGON SKEIN PLANT.
LONG ARM AXLE PLANT.

Patterns, Machinery and Tools. Also Wagon Box Patterns.

THE JAMES L. HAVEN COMPANY,
57 Plum Street, Cincinnati, O.

FOR SALE.

35 lb. and 30 lb. T rails, second-hand, suitable for relaying; four miles with fastenings, by

MANOGUE-PIDGEON IRON COMPANY,
Memphis, Tenn.

FOR SALE.

One pair Howe Truck Scales, four beams, 34 feet long, weight 122,000 pounds. As good as new.

THE COLUMBUS IRON & METAL CO.,
Columbus, Ohio.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

Bargains for cash before removing to our new store, 46 N. 7th St.

One 10 x 22 Horizontal engine. A No. 1 condition.
One 4 x 4 " " " "
One 8 x 14 Vertical " " "
One 6 x 6 " " New.
One 7 x 7 " " "
One 5 x 6 " " "
One 6 x 7 " " "
One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.
HIGH & DAMPMAN, No. 123 N. 3rd St. Philadelphia.

—ENGINE.—

800 H.-P. Horizontal Engine.
Cylinder 30 in. diam. x 7 ft. stroke.
Fly-wheel 22 ft. diam. rim 10 in. x 12 in.
Suitable for Blast Furnace or Rolling Mill.
Also, Double Acting Plunger Pump For Sale Cheap.
C. W. SCHULTZ & CO.,
308 Walnut St., Philadelphia.

FOR SALE.

One 21 in. x 13 ft. Lodge & Davis improved Engine Lathe. Complete.
One 24 in. x 20 ft. Fifield Engine Lathe. Complete.
One No. 3 Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.
DANIEL KELLY,
51 N. Seventh St., Philadelphia.

FOR SALE.

BESSEMER PIG IRON

3000 tons No. 1 Bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

JUPITER FURNACE CO.,
6-28 Laclede Building, St. Louis, Mo.

STEEL RAILS.

We offer 100 tons second-hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).
H. V. L. MEIGS & CO.,
136-138 So. 4th St., Philadelphia.

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1 2000 lb. double standard Bement Steam Hammer with Anvil and Extra Piston Rod. Hammer is in first-class condition. Immediate delivery
100 lb. Bradley Cushion Hammer.

Geo. Place Mch. Co.,

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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address
"ENGINE," Box 324,
office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE

SECOND-HAND

FEED-WATER HEATERS.

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

BENJ. F. KELLEY & SON.
Liberty St., New York.

FOR SALE.

Large lot of Loco. Boilers,
50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

SECOND-HAND

BOILER TUBING

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address
Wm. F. Jarvis & Co.,
Detroit, Mich.

FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.
BUSSENIUS & CUNLIFFE,
1142 Washington Ave., Philadelphia.

FOR SALE.

CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

FOR SALE.

Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.
THE GOULDS MFG. CO.,
Seneca Falls, N. Y.

FOR SALE.

One 32 in. x 48 in. Corliss Engine; has 14 in. forged shaft, 23 feet long and 50,000 pound fly wheel, all in first class order. Address
J. A. VAIL,
13 So. Fourth Street, St. Louis, Mo.

WANTED.

SECOND-HAND MACHINERY.

2 Pulleys, 10 ft. x 24 in. face, hub for 12 15-16 to 13 in. shaft.
2 Pulleys, 5 ft. x 24 in. face, hub for 6 15-16 to 7 in. shaft.
1 Shaft, 6 15-16 to 7 in., 9 ft. 3 in. long.
4 Housings for 18 in. to 22 in., 3 high train. Would vary a little from above sizes.
Address "SECOND-HAND,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No. 1 Wrought Iron Scrap. Correspondence solicited.
WM. D. BENNAGE & CO.,
2213-2215 Hamilton St. Philadelph

—:CORLISS:—

Automatic Engines

—ALSO—

Electric Light, High Speed and Slide Valve Engines in first-class condition for immediate delivery at very low prices.

1 30 x 72 Corliss Condensing Engine.
1 Pair Corliss Condensing Engines, 20 x 48.
1 23 x 36 Corliss Engine.
1 20 x 48 Corliss Engine.
1 16 x 42 Corliss Engine.
1 12 x 36 Corliss Engine.
1 Pair Woodruff & Beach Condensing Engines, 20 x 48.
2 11 x 20 Buckeye Engines.
1 14 x 24 Buckeye Engine.
2 13 x 12 Armington & Sims.
Slide Valve Engines, 11 x 24, 10 x 16, 10 x 12 and 8 x 8.

Several Steel Tubular Boilers 50 to 125 H.-P. also, several sizes Pumps, Rock-Drills, Fan Blowers, &c., &c. Send for Circular.

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MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.
SECOND-HAND MACHINERY.

Corliss Engines, 30 x 60, 26 x 60, 26 x 42, 24 48, 18 x 48, 12 x 36.
Wright Automatic Engine, 22 x 42.
Brown Automatic Engine, 18 x 42.
Watertown Automatic Engine, 18 x 28.
Woodbury Automatic Engine, 12 x 18
Ball Automatic (High Speed) Engine, 12 x 12.

Extra Heavy Knuckle Joint Press.

Built by G. H. Bushnell Co. of Thompsonville Ct., for pressing Dried Brewer's Grains. Worked satisfactorily. Nearly new. Presses bales 18 in. x 36 in. x any required length up to 6 ft. Late improvements. Price and Blue Print on application.

Vertical Engines, Slide Valve Engines, Propeller and Yacht Engines, single and compound.
Horizontal Boilers 25 to 90 H.-P.
Zell Sectional Water Tube Boiler, 75 H.-P.
Vertical Boilers 8 to 30 H.-P.
Send for Lists.

General Machinery.
MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools.
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers. 6 spindle for ⅞ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern.
2 Heaters, medium and large size.
1 No. 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.

W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

WANTED.

SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.
"MANUFACTURER," P. O. Box 1840,
New York, N. Y.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small. "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

Changed Weekly.

— FOR SALE. —

CARS, Flat, 12 Penna. R. R. Standard.
ENGINE, Roper, 5 H.-P. Offer wanted.
GAS ENGINES, 5 and 10 H.-P., new, guaranteed, perfect order, will put in on trial within reasonable distance. By Pennsylvania Diamond Drill Co.
TO TOOL MAKERS, have large lot of seasoned Dogwood and Persimmon Blocks, sawn to sizes. Can you use them?
STREET CAR, combination, half open, half closed.
LOCOMOTIVE, 34 in., saddletank. Perfect order. Pa.
PIPE, 6 inch flange, good.
WIRE for bundling, different sizes.
CARS dump, 20, side, 2 and 5 yds.
RAILS, 16s, 20s, 30s, fit to relay.

— WANTED. —

Correspondents in every town and city to whom I can send lists of what is offered me for sale and to whom I can offer agencies for articles that are sent me. Let me hear from you.

H. H. MANSFIELD, 126 Liberty St., N. Y.

WATCH THIS SPACE

For Bargains in first-class second-hand Machine Tools. We have added to our already extensive Wareroom a large department for second-hand Machinery, and will have constantly a complete stock of good tools on hand for quick delivery. List changed bi-monthly.

ENGINE LATHES.

16 in. 6 ft. Blaisdell Rise and Fall X Feed Rest. Complete. Good order.
14 in. x 6 ft. Bogert, H. S. Rise and Fall Rest, complete A1 condition.
15 in. x 5 ft. Flather, H. S. Rise and Fall Rest, complete A1 condition.
13 in. x 5 ft. Pratt & Whitney Turning Lathe, H. S. Taper Attachment Automatic Trip to Carriage Feed. A1 condition.

PLANERS.

19 in. x 19 in. x 4 ft. Whitcomb, a good tool. A1 condition.
22 in. x 22 in. x 6 ft. Whitcomb, good handy tool. A1 condition.

DRILLS.

3 20 in. Wheel Feed, Quick return. In good order.
No. 3 Garvin 4 Spindle Elevating Table. In good order
No. 4 " 6 " " " A1 condition.
Pratt & Whitney 4 Spindle " " A1 condition.

MISCELLANEOUS.

No. 2 Brown & Sharpe Milling Machine. Good as new.
No. 5 Brainard " " A1 condition.
No. 3 Pratt & Whitney Back Geared Screw Machine. Power Feed to Turret, with lot of tools, a snap. A1 condition.
No. 1 Brown & Sharpe Screw Machine, lot of Tools. Good as new.
1 Spindle Garvin Profiling Machine. Good as new.
No 2 Springfield Tool Grinder (a bargain) used 30 days
No. 51 Bliss Power Press A1 condition.
15 in. Hendey Shaper, rebuilt. A1 condition.
Write for list of over 200 new and second-hand tools in stock for immediate delivery.

THE GARVIN MACHINE COMPANY,
Laight and Canal Sts., N. Y.

Wrought Iron Tanks For Sale

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,

59-73 West St., - Brooklyn, N. Y.

SPECIAL TO MANUFACTURERS!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations. 170 x 800 feet; N. Y. C. R. R. switch full length of property. I will advance one-half money necessary for erection of permanent buildings.

E. G. FELTHOUSEN, Room 42,
534 Main St., Buffalo, N. Y.

TO MANUFACTURERS.

South Bethlehem offers to manufacturers seeking locations the best railroad facilities, cheap fuel, plenty of cheap labor and land. The town is at the junction of the Lehigh Valley R. R. and North Pennsylvania R. R., 87 miles from New York and 54 miles from Philadelphia; is within 34 miles of the anthracite coal fields; has fine schools, churches, good water supply, electric light, miles of well made streets and excellent markets. Apply to the

BOARD OF TRADE,
South Bethlehem, Pa.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

FOR SALE. WELL EQUIPPED

Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

P. O. BOX 1119, New York.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address

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AS SUPERINTENDENT of Wire Mill; all latest methods of handling the following thoroughly understood; galvanized wire, cloth and netting, brass, copper, iron and steel of every description, crucible and spring steel a specialty; every detail of wire nail business; mills failing to pay preferred; can build mills from foundation; unexceptionable testimonials furnished. Address "WIRE," office of *The Iron Age*, 59 Dearborn St., Chicago.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

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BY a Merchant Mill engaged in rolling Bars, Plate and Special Shapes, the services from time to time of a practical Merchant Mill Operator, thoroughly conversant with the latest practice in his department, and competent to act as consulting engineer. One engaged in active mill superintendence preferred. Traveling expenses when personal inspection required and annual retainer paid. Address "RICHMOND," office of *The Iron Age*, 96-102 Reade St., New York.

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A MAN to sell Steel Castings. Only those need apply who have a knowledge of this business. The advertisers would give preference to man who had previously been employed in selling Steel Castings, but would be willing to engage a man of good address, with such an acquaintance with the business as to enable him to make prices intelligently. "STEEL CASTINGS, 512," office of *The Iron Age*, 96-102 Reade St., New York.

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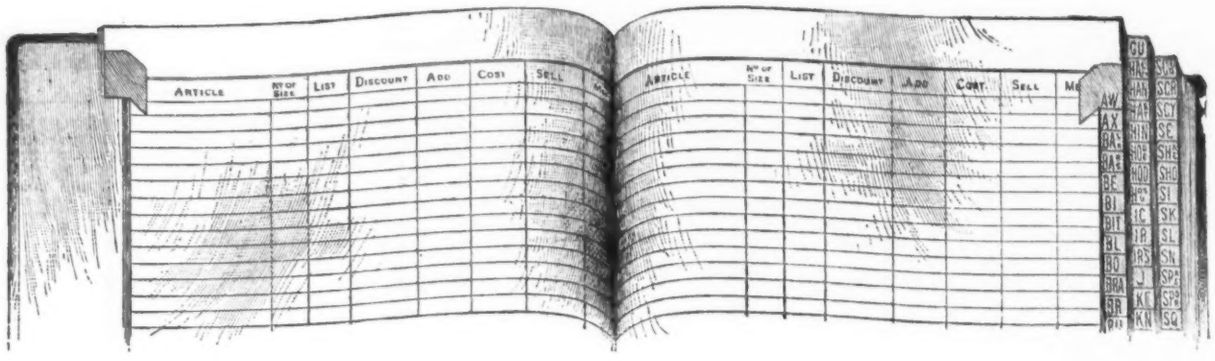
The Iron Age Hardware Price Book E,

WITH MULTIPLE INDEX (Patent Pending).



SIZE.—The book is 7 x 10 inches (much larger than Price Books A, B, C or D), 280 pages.

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BINDING.—The binding is of the very best quality—flexible seal grained leather with pocket.

INDEX.—By means of the arrangement shown in the cut the index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line.

ARRANGEMENT.—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

SUPPLEMENT.—A 40-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

This book is issued in only one edition, **price $5.00.**

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Fac-Simile of Indexing.

Advantages of Multiple Index Price Book.

A SPECIAL feature of the book is the arrangement of the index characters, which instead of being alphabetical are arranged with special reference to the classification of Hardware goods, each index character giving the first two or three letters of the names of Hardware articles, as shown above.

The ease and convenience with which the book can be used is indicated in the following examples:

For Augers,	turn to AU	For Chisels,	turn to CHI	For Iron,	turn to IR
" Apple Parers,	" PA	" Cutlery,	" CU	" Irons,	" IR'S
" Saws,	" SAW	" Cartridges,	" CAR	" Shovels,	" SHO
" Pumps,	" PUL M	" Rules,	" RU	" Grindstones,	" GRI
" Bits,	" BIT	" Locks,	" LO	" Stones,	" STO

Special care has been taken to make the classification as indicated in the index correct and comprehensive, making provision for all Hardware articles and giving sufficient space for the keeping and recording of prices. It is thought that every strictly Hardware article has its first two or three letters given, thus permitting immediate reference to it by a single motion.

It is, however, obvious if any articles are not directly designated by the index characters, that the index being alphabetical in its arrangement indicates the place where quotations on such articles should be recorded. The supplement, however, may be found useful for quotations on any outside goods which the Hardwareman may desire to keep prices on, while at the same time it may be used if necessary for any overflow of matter from the preceding pages, or to contain list prices or other matter relating to goods.

Hardware Classification.—A pamphlet containing a classification of the leading Hardware articles is furnished with the price book.

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This price book, which has been prepared by R. R. Williams, Hardware Editor of *The Iron Age*, is presented to the attention of Hardwaremen in the confidence that it will be found a most valuable aid in keeping track of prices.

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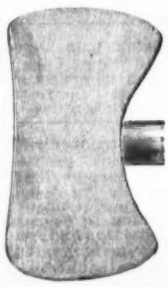

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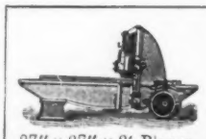

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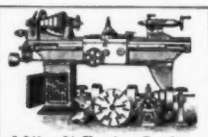

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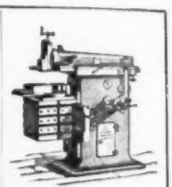

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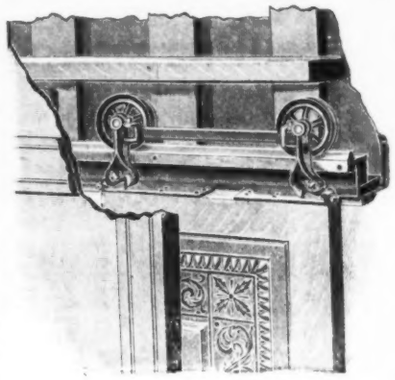

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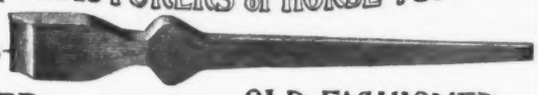

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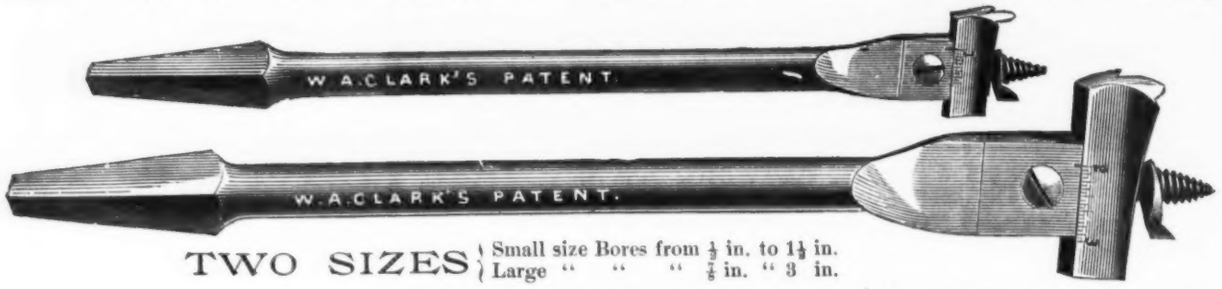

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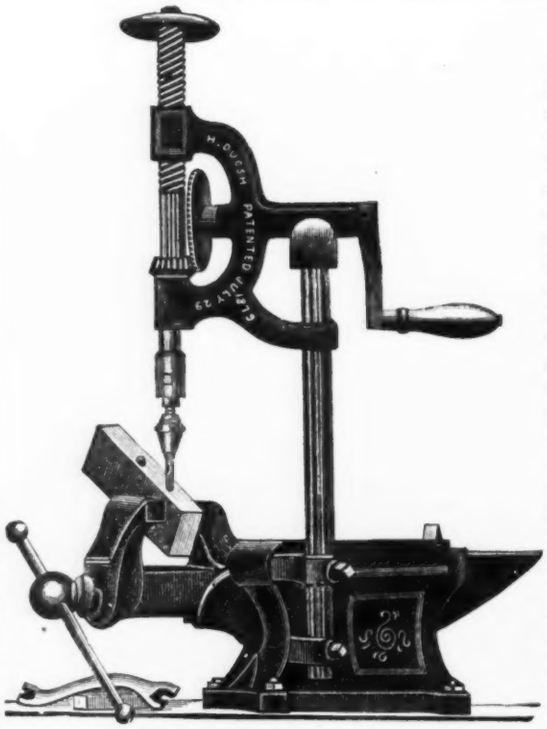

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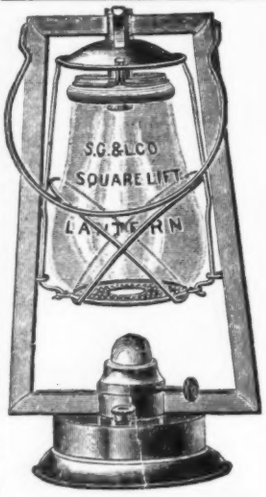

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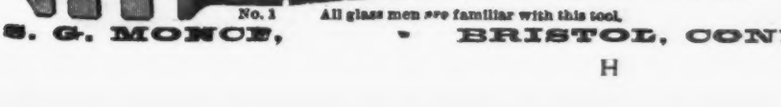

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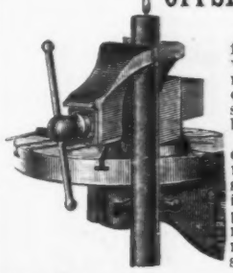

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Manufacturers of Hardware Novelties,

Patent Models and Samples of the most attractive style. Correspondence solicited and estimates promptly furnished for the manufacture of all kinds of Hardware Novelties and light patented articles.

Inventors assisted in perfecting their claims in patents and making their Models, Trial Machines, etc. All kinds of Brass Castings made to order. We shall also have Machine Shop and Foundry attached for the manufacture and repair of machinery.

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Pumps, Hydraulic Rams, Garden Engines,

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DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries

Fig. 120.

Fig. 70.

or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

Send for Circular and Price List.

Fig. 209.

Fig. 381.

MYERS REVERSIBLE STEEL AND WOOD TRACK HAY CARRIERS

TRADE MARK. A complete outfit. Easy to put up, always reliable and fully warranted to meet the wants of any farmer.

MYERS' FORCE AND LIFT PUMPS

Simple, durable, powerful, easy to operate never affected by frost. **Patent GLASS VALVE,** will never corrode. Ask your dealer for our goods. Write for catalogue.

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SPECIAL FEATURES OF OUR LEVEL.

1. The greatest strength and durability attainable. 2. Entire glass exposed to view. Most convenient level made. 3. The only level really adapted to the rough use of masons. 4. Absolutely accurate and finely finished. Send for Circulars and Price-lists. **AKRON SPIRIT LEVEL CO., AKRON, OHIO.**

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WITH OR WITHOUT AGITATOR.

"EUREKA" NOZZLES, "VERMOREL" NOZZLES, ETC.

THE GREATEST VARIETY.

DISCOUNTS ON APPLICATION.

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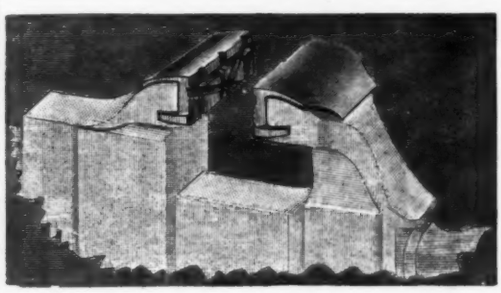

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Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

3½ inch, ...per pair, 40 cents.
4 " ..... " " 50 "
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PARAGON BOX OPENER.

This is a Practical, Convenient and useful Tool. A Box Opener, Nail Puller and Nail Driver. Made of Steel, well tempered and strong. Endorsed by all who have used it, and proves a ready seller. **Price, Each, 75 Cents.**

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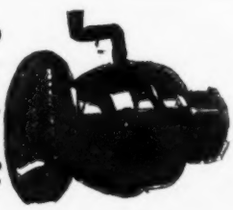

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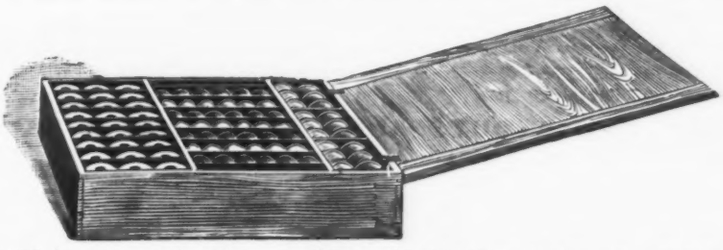

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We would also call your attention to our extensive assortment of spool wire, which is the neatest box on the market and is indispensable to the retailer. **Send for Catalogue.**

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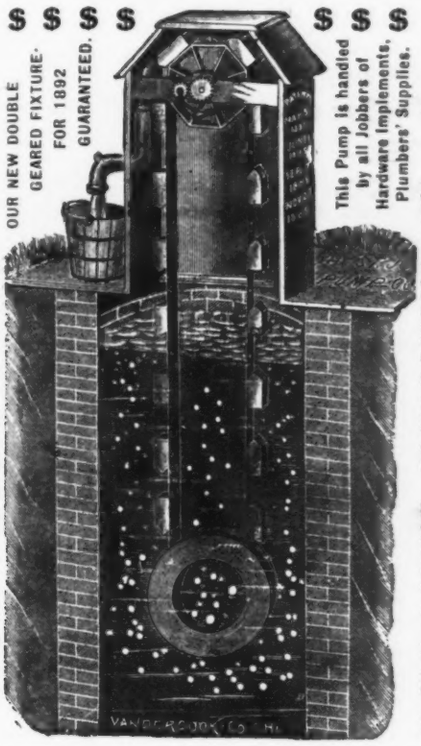
This Pump is handled by all Jobbers of Hardware Implements, Plumbers' Supplies.



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Having no Valves, Tubes or Plungers to get out of order, no Wood Tubing to Pollute the water, no attachment below platform, never has to be primed, packed or thawed out. Guaranteed never to freeze; easiest pump operated. Over 140 000 in daily use.

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Adjustable Socket Wrenches and Breast Drills.

Write for 1892 Catalogue and Price List.

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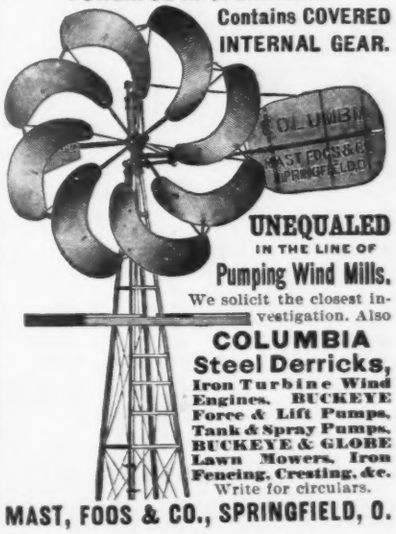
New in Principle. Beautiful in Appearance.

POWERFUL IN OPERATION.

Contains COVERED INTERNAL GEAR.



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"The New York Safety Dumb Waiter,"

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Made specially to be sold by Hardware Stores. Thousands in use. Catalogues on application.

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Formerly of Poughkeepsie, New York.

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The Famous "Dexter."

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Cross-Cut, Circular, Band and Gang

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Are Everywhere Recognized as the

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Western agency for Tanite Emery Wheel.

Second only to the Silver Steel Diamond, and equal to it when made of the same class of steel, is the Patent Concaved Tooth Dexter. The patent by which this saw is protected consists of a depression of the face of the cutting teeth through the centre from point to base, thus removing all friction while in use, giving strength and stiffness to the teeth and increasing threefold the durability of the "set." This saw never fails to give the best satisfaction

Ground substantially uniform gauge on the toothed edge, and any gauge required on the back

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Extra Thin Back.
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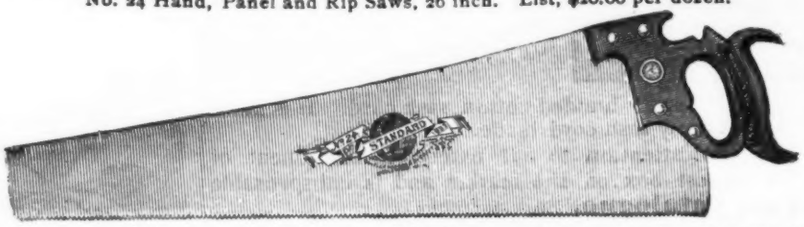

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This is the best and cheapest saw made for the mechanic's use. It is fully warranted and will outlast any other saw on the market.

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Specially Adapted for Use on Wire Fence.

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Saw, Tool, Steel and File Works,

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All goods bearing our brand are fully warranted.

Solid Shank Cast-Steel Garden Trowels.

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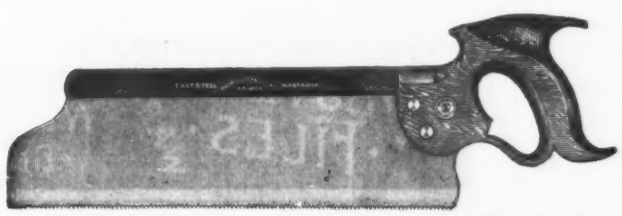
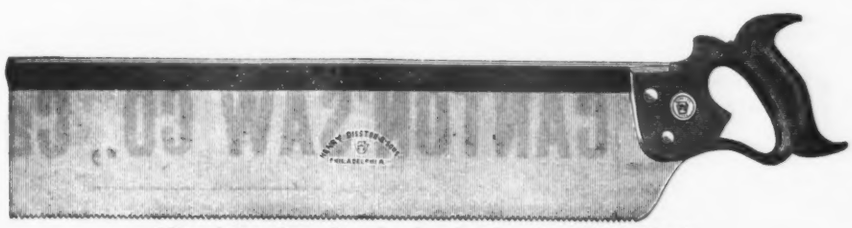
The knife and saw are made of the best cast steel.



No. 9 Improved Back Saw. Apple Handle with Thumb Piece.



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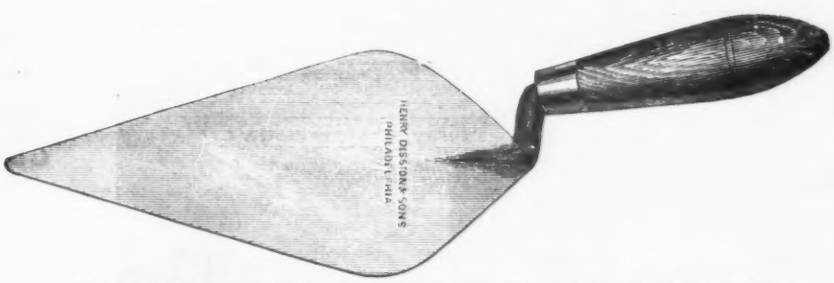

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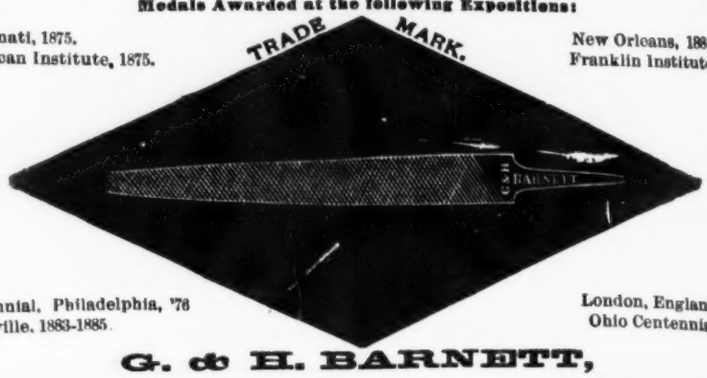

Centennial, Philadelphia, '76
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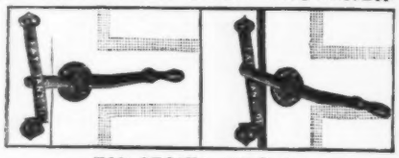

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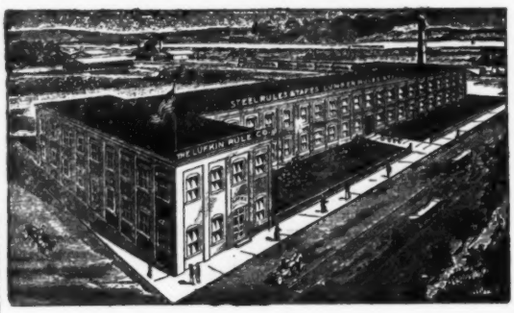

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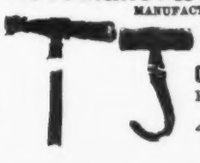

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Patented Feb. 13, 1877, a new combination of Hooks.
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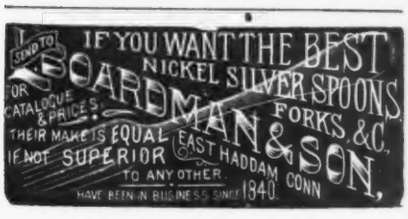

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TAKES THE LEAD.

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SELF-CLEANING.

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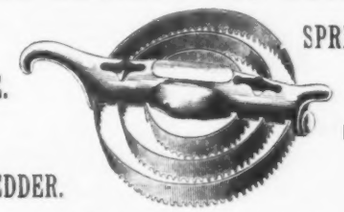

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MALLEABLE BACK.

Notches in Casting permit the Blades to rock on the Rivet.

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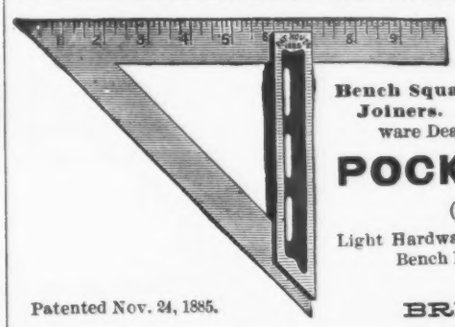
Arranged to be held by Thumb and Little Finger (the natural way of holding a comb).

CAUTION.

This Comb is secured to us by Letters Patent No. 464,773, dated December 8th, 1891, and we have secured control of Patent No. 220,986, dated October 28th, 1879, issued to Paschal Plant, together with all accrued claims for infringement of said Letters Patent. We hereby CAUTION all parties against MAKING, SELLING or BUYING Curry Combs that in any manner infringe these Patents. The said Patent No. 220,986 is the BOTTOM PATENT to FLEXIBLE or SPRING Curry Combs. The "claim" thereof reads as follows: "As a new article of manufacture, a flexible Curry Comb formed of a toothed strip of metal or other suitable material, without a plate or back, and with a suitable handle attached directly to the strip, substantially as described." Parties MAKING, SELLING or BUYING FLEXIBLE or SPRING Curry Combs not licensed by us under the above-mentioned Patent are liable to damages, and we shall proceed against them as fast as possible.

F. E. KOHLER & CO., Manufacturers of Hardware Specialties, **Canton, Ohio, U. S. A.**

THE HATCH & HOLMES MFG. CO.,



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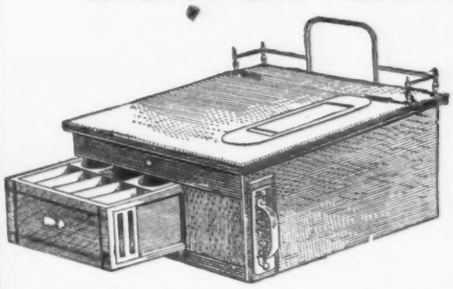

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Have established and maintained their reputation, for superiority, against all Competitors, from

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and are still in increasing demand. As in the past, it is the unalterable

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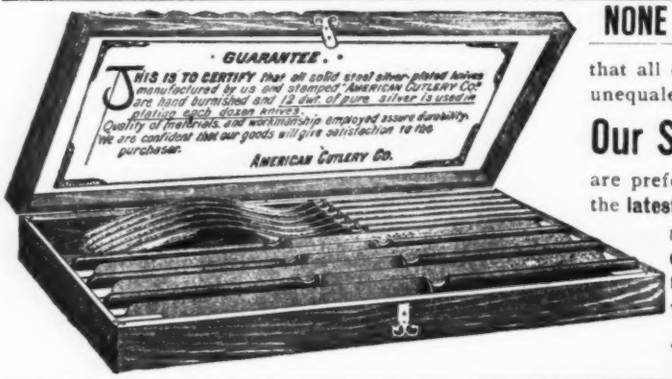

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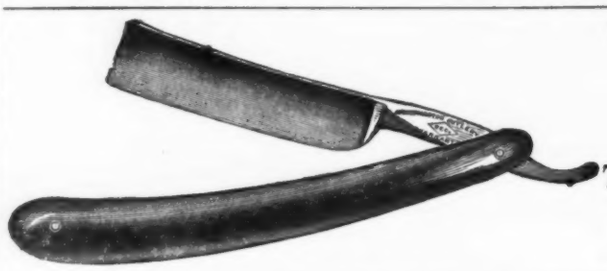

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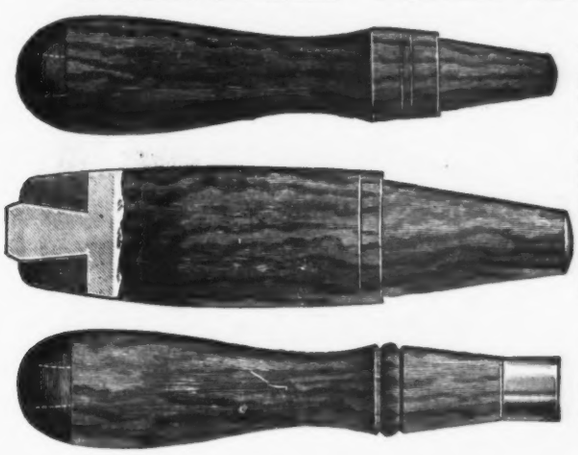

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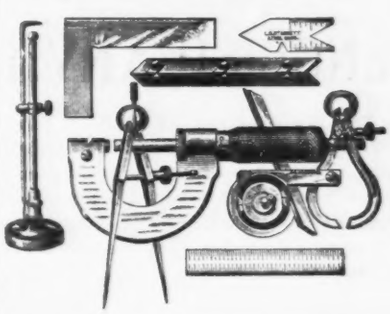

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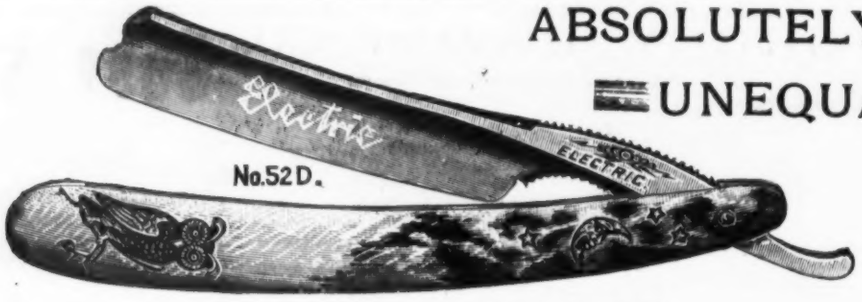

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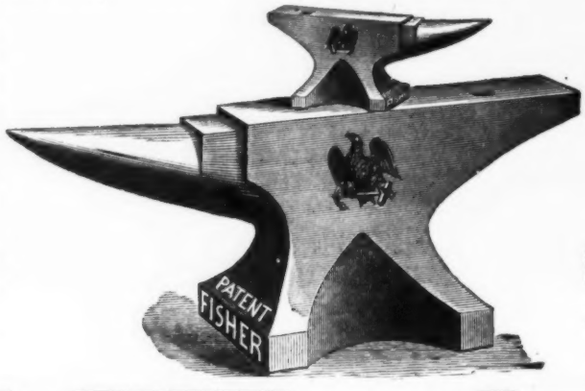

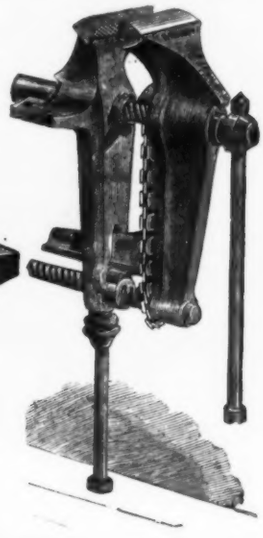

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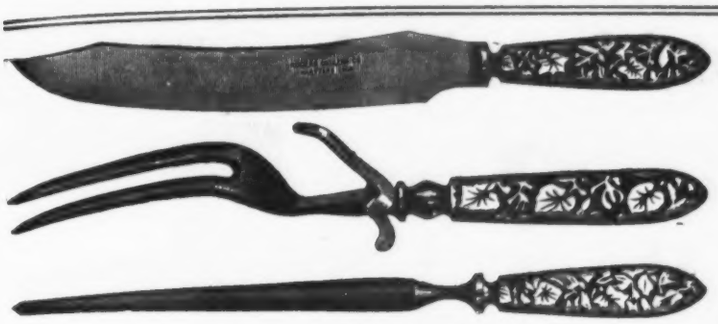

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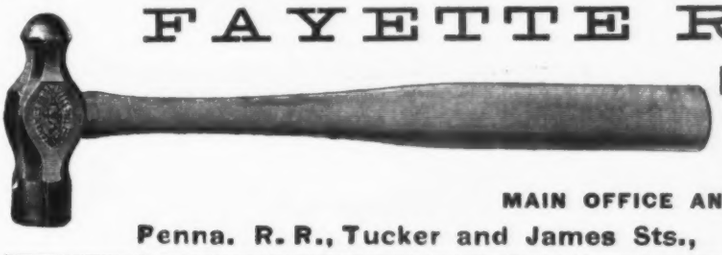

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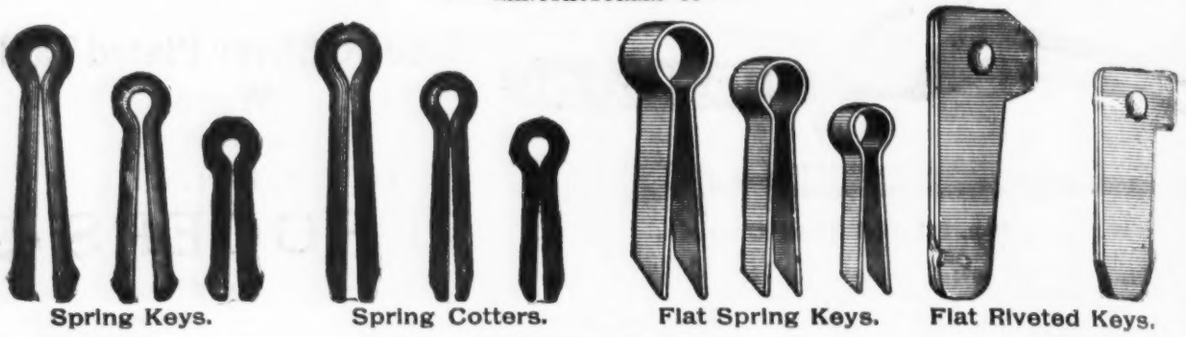

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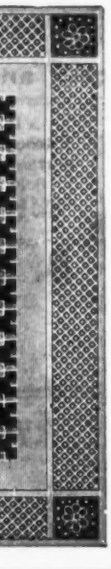

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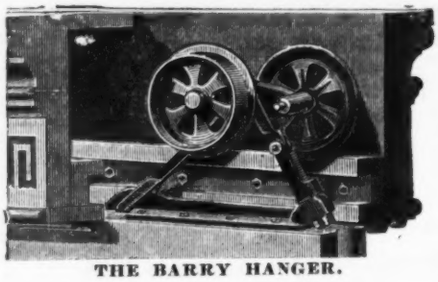

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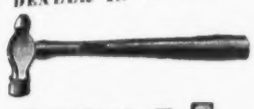

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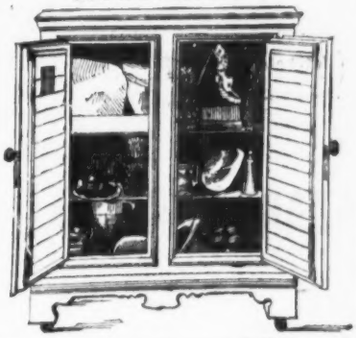

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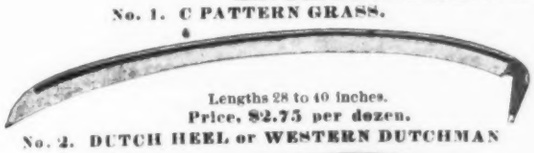

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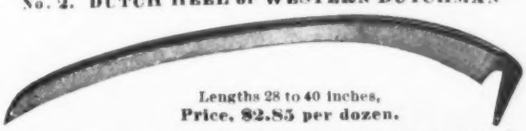

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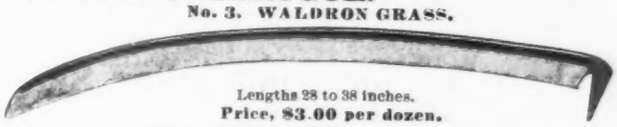

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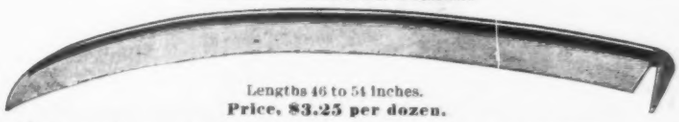

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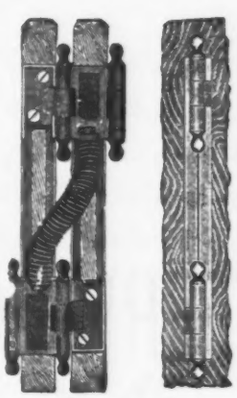

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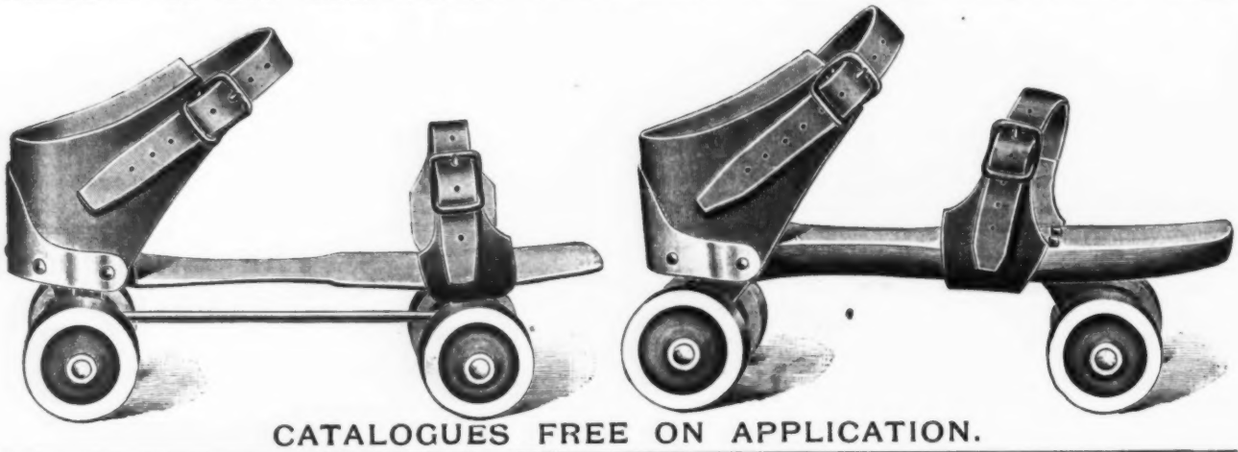

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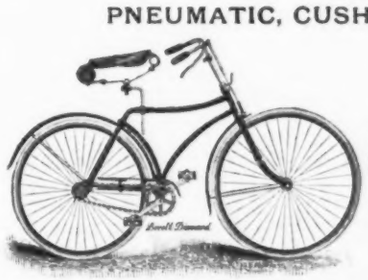

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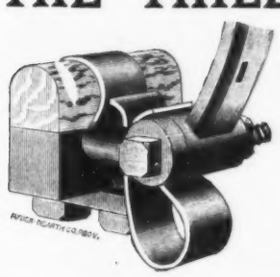

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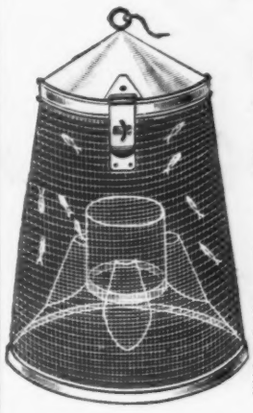

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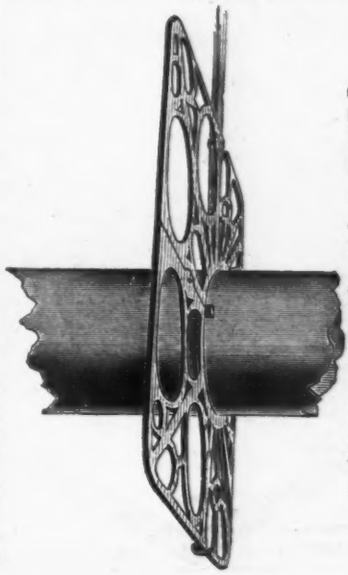

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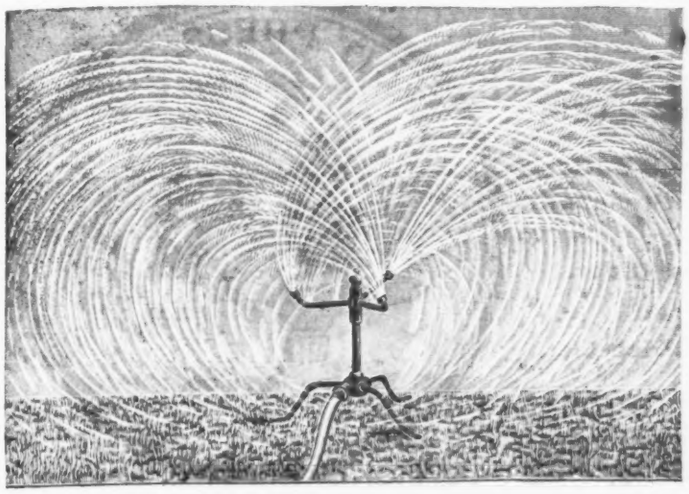

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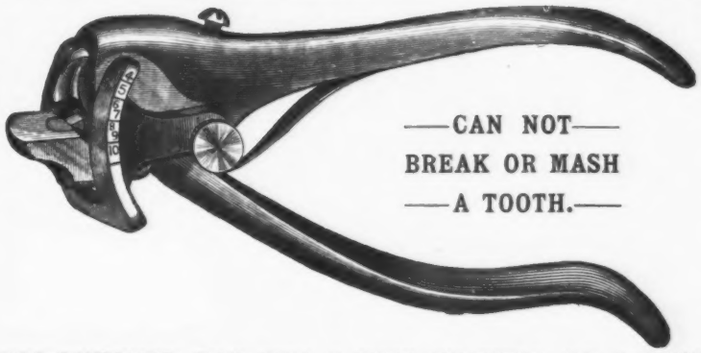

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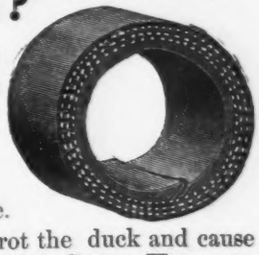

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With couplings attached.
Or bale will be made up as desired at proportionate prices.

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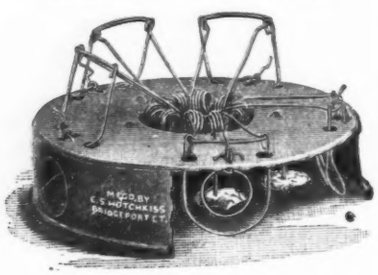

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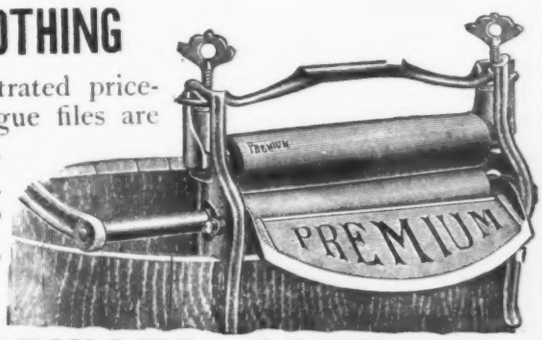

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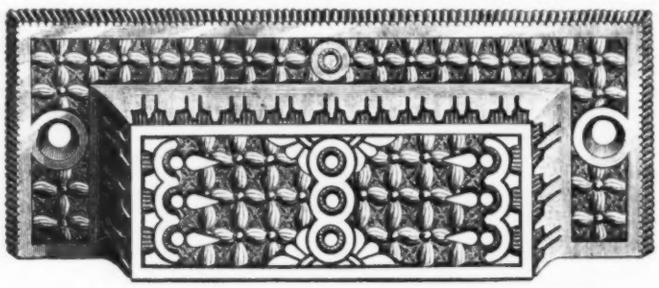

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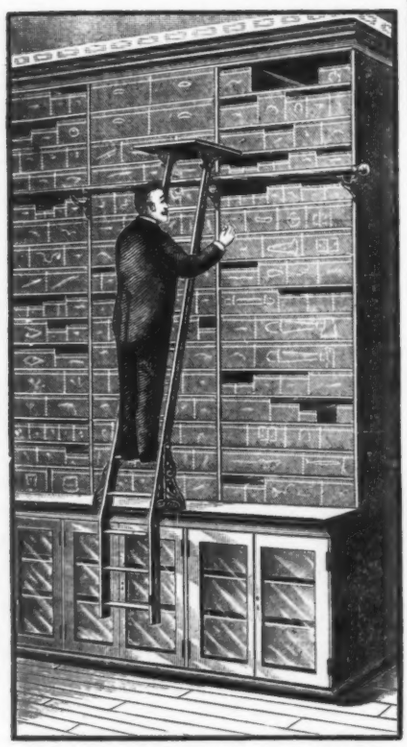

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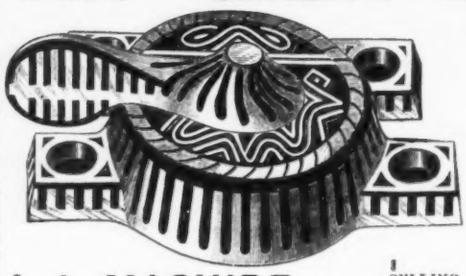

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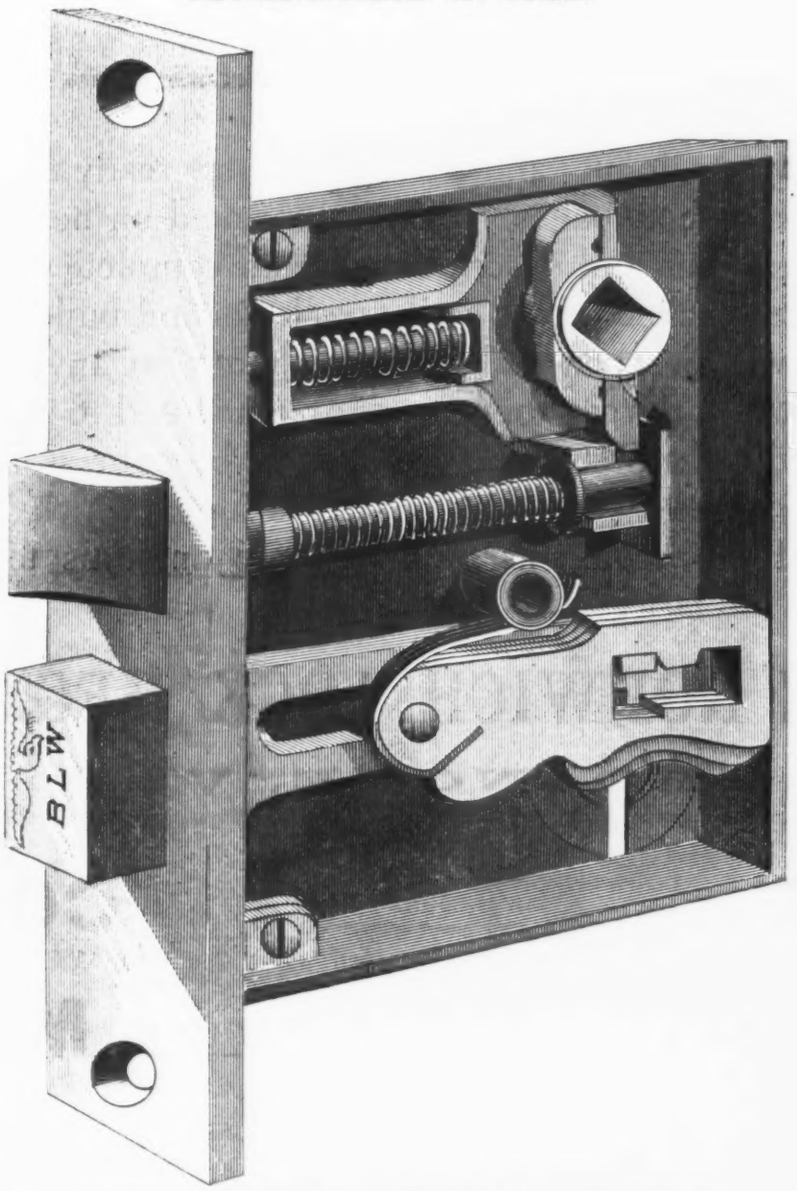

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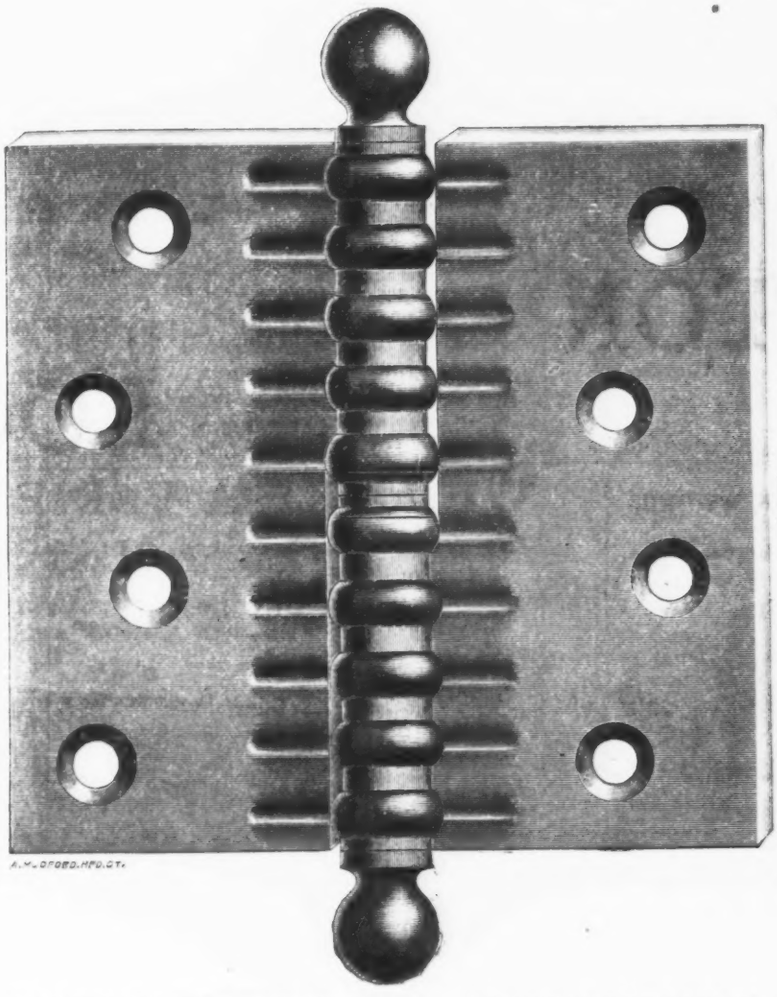

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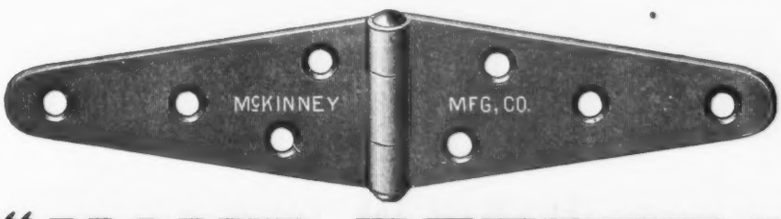

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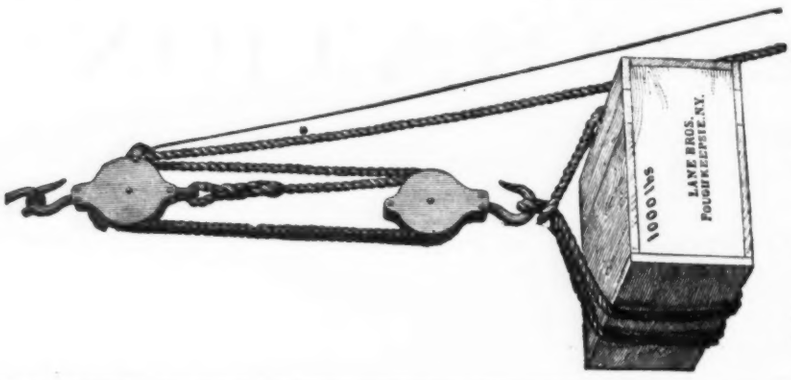

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Anti-Friction Steel Bushings,

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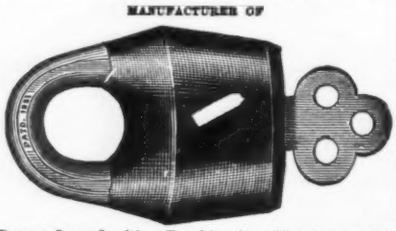

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Unpickable Flat Bronze Spring Padlock,

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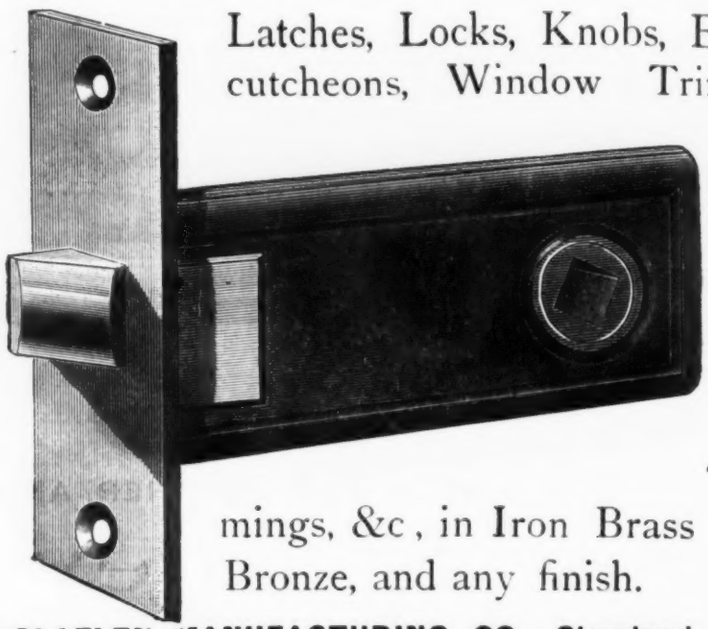

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Sizes, ¾ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ⅛ and ⅛ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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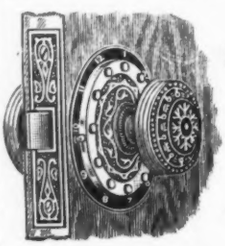

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WHY NOT PROTECT YOUR

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and all other places containing valuables with Combination Locks?

We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

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Derailment Impossible. Occupies least possible space.

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Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights Write us for prices, also for **THE IDEAL DOOR SPRING.**

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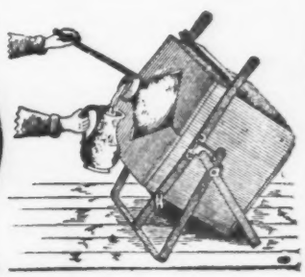

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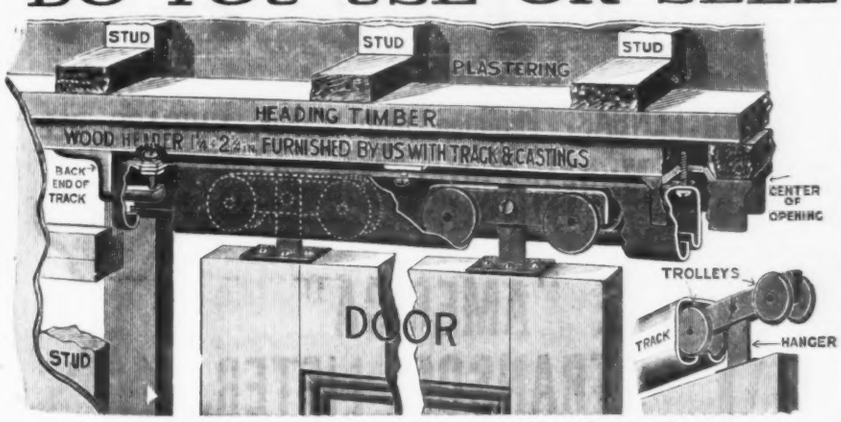

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The Coburn Hangers for Parlor, Barn or Fire Doors? They are the only covered adjustable track in the world. No plaster or chip can block this track. The bearings are self-lubricating and never require oiling. The noise is reduced to a minimum. Can be hung in one-third the time of all other hangers.

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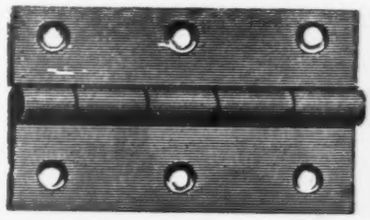

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Steel Frame, Aluminum Tape. Practically indestructible.

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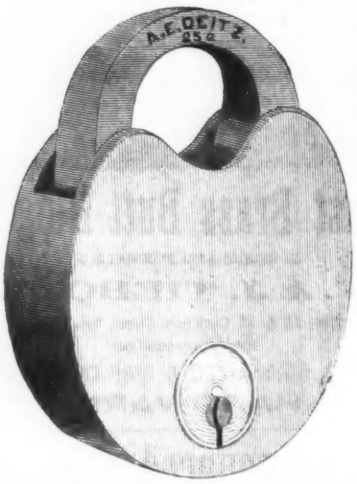

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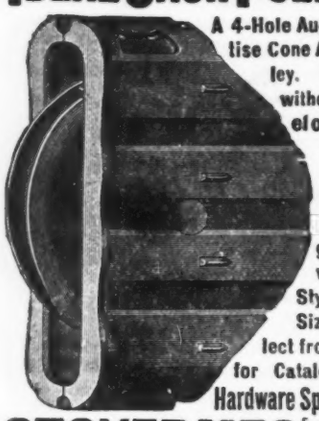

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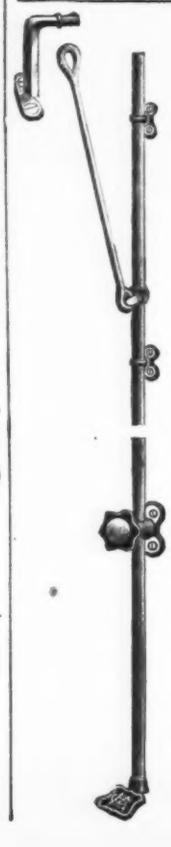

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The Thumb Screw Standard and Guides are constructed with **Rotatable Bases.**

These **Revolving** or **Adjustable** Bases enable the Lifter to be secured to any style of moulding or narrow beading (see cut on right) and to either

RIGHT OR LEFT HAND SIDE OF DOOR.

Saves Merchant carrying double stocks.

Send for Illustrated Circular of our full line of Lifters.

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Shows possible position of rotatable base.

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Spring used in TRIUMPH SNAP.

Takes the lead. Every feature a triumph. No dirt or ice can clog it. It is the most convenient, most durable and the handsomest. Made in all sizes, both loop eye and round eye; also swivel eye and open eye, and double for bit snap, &c. We are the parties who guarantee satisfaction or refund your money.

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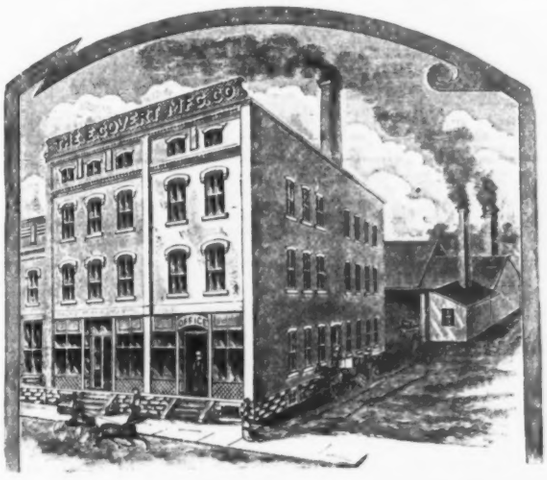

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IS MADE OF

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Waranted Not to Break with Legitimate Use.

Fits Nuts on any ordinary Carriage or Wagon.

NO SCREWS OR THUMB NUTS

to adjust. A simple pressure of the finger opens the jaw, which adjusts itself to any Square Nut from $\frac{5}{8}$ in. to $1\frac{3}{4}$ ins.

EASIER TO OPERATE THAN ANY OTHER.

The handle being at right angles with the body forms a crank, allowing the nut to be turned off in the easiest and most natural manner with one hand.

THE NUT IS HELD FIRMLY

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BEST AND CHEAPEST.

Save **60 per cent** labor in hanging sash cs

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Sample pair sent to any hardware or saddlery firm by addressing

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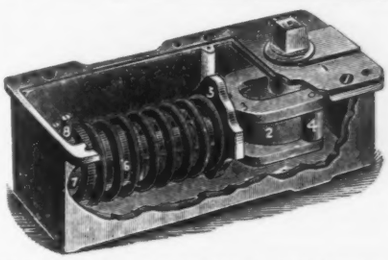

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Applied in floor under door. They close the door gently, without noise or violence and stop it at once at the centre. Doors cannot sag, springs do not break or set.

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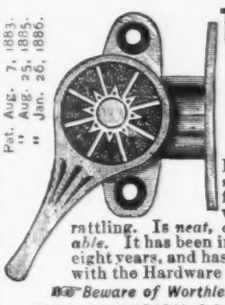

The Champion SIDE Sash Lock

Has by its *unequalled merits* gained the public favor. It is a safe ventilator and prevents rattling. Is *neat, cheap, simple and durable.* It has been in *extensive use* for over eight years, and has become a *staple article* with the Hardware trade.

Beware of Worthless Imitations.

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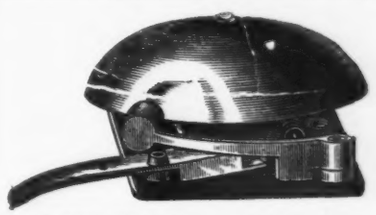

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SPECIAL DROP FORGINGS.

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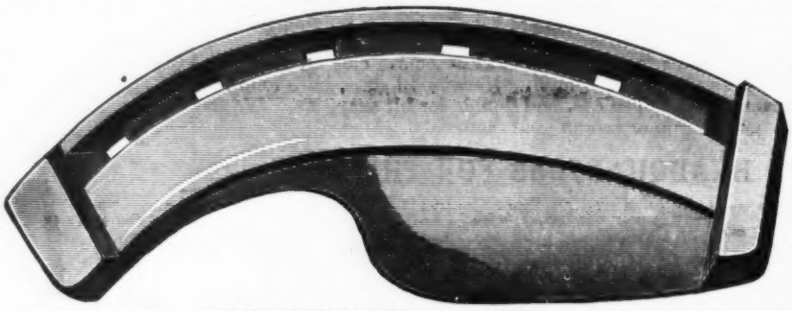

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The Best and Cheapest in the World.

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Warranted to outwear any shoe made.

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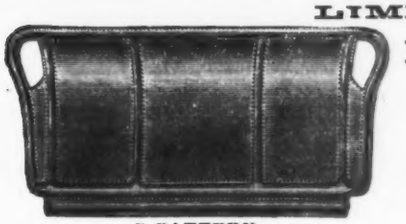

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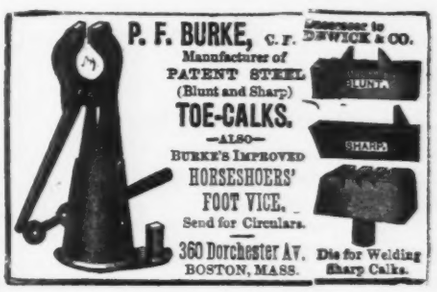

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This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

This Wrench can be Furnished with Long Nut or Sleeve.

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The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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TRIMO PIPE WRENCH,

Forged Steel.

All parts Interchangeable.

Grips firmly without loss of motion, in close quarters. Releases its hold readily. Does not crush the pipe. Causes no trouble

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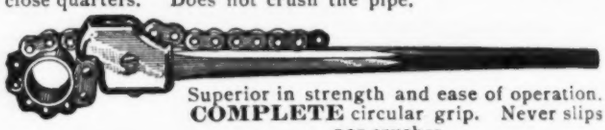

Superior in strength and ease of operation. **COMPLETE** circular grip. Never slips nor crushes.

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Billings' Patent Cutting-Off Tool.

The Holder is drop-forged, of steel, and finished in a thorough manner. The Cutters are made of the best tool steel and furnished in the following thicknesses: $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$.

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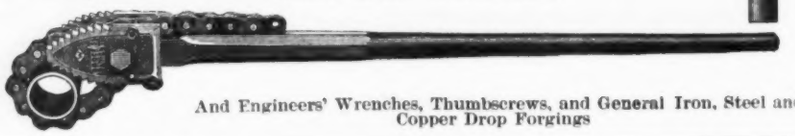
Improved Model. In Seven Sizes.



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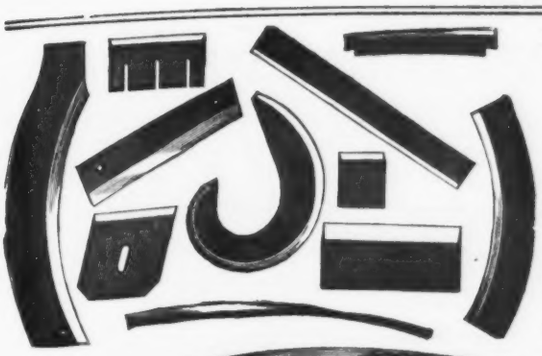

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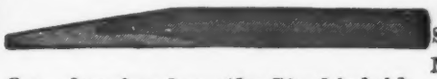
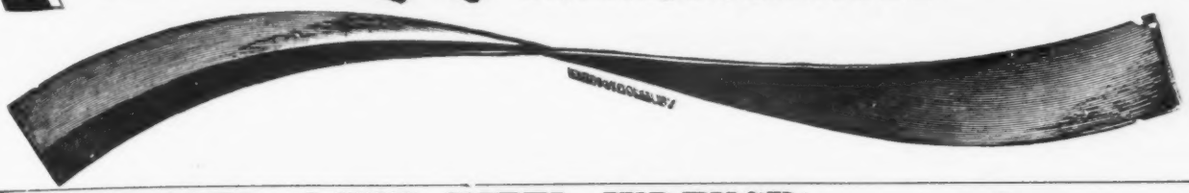
Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description



End view of Plated Stock for Dies, Lawn Mower Knives, Blades &c., showing how the Steel is laid.



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This Screw Driver is made from one piece of special cast steel, in all sizes, from 1½ in. to 12 in. The blade is well polished, carefully tempered, and every screw driver is subjected to a severe test and warranted. Handles Japanned with the best quality baking Japan.

The Strongest and Most Durable Wrench and Screw Driver Made.

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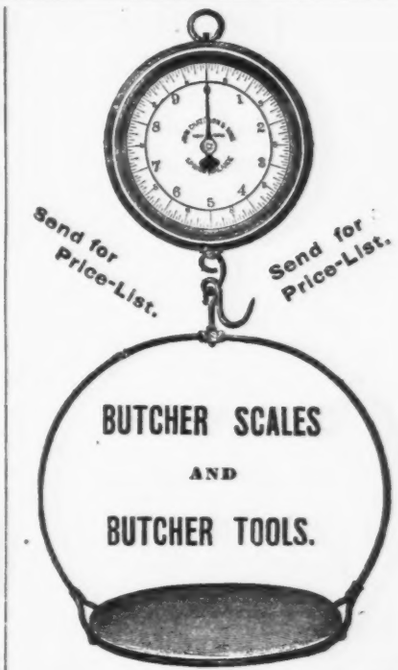

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Genuine Improved

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Established in 1859.

Patented July 6, 1880.

Registered March 31, 1874.

Patented July 8, 1884.

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position

☞ Straight Bar, Extra Long Nut for Screw in Jaws. ☜

The BEST MADE and STRONGEST WRENCH in the MARKET

J. C. McCARTY & CO., JOHN H. GRAHAM & CO. } **New York Agents.**

THE BIEDER ADJUSTABLE Grass Catcher

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Is the only Adjustable Grass Catcher on the market and accommodates itself to any Mower.

ATTRACTIVE, DURABLE, CHEAP.

It is Light (Weight One Pound.)

DONT BE MISLED BY CHEAP IMITATIONS.

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An appliance to be attached to a tackle block for holding the load at any desired height. Grips the rope but does not injure it. Applicable to any style of block and easily attached. The lightest and cheapest on the market and perfectly sure. If your hardware dealer does not keep it send to us and we will deliver it.

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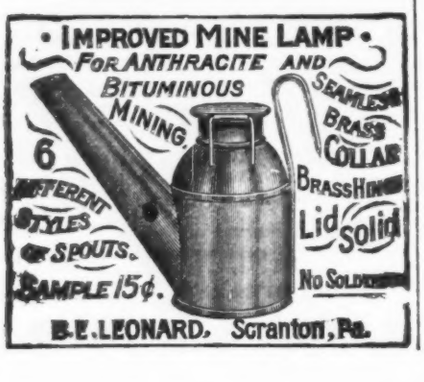

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TACKLE BLOCKS

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Note the superior strength gained by the encircling outside strap, with bolts and steel pin passing through both plates and straps. Edges rounded to protect the rope.

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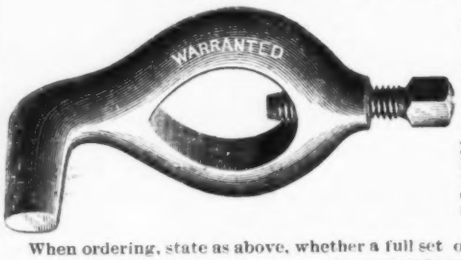

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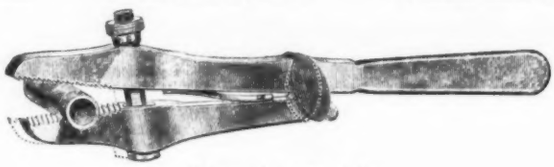

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Also Manufacturers Continental, New Quaker City, Great American Lawn Mowers and Horse and Pony Mowers.

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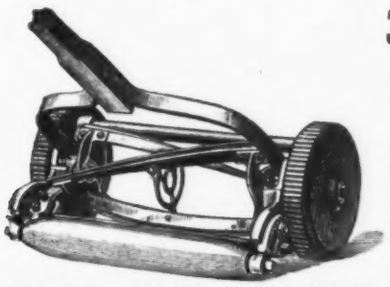

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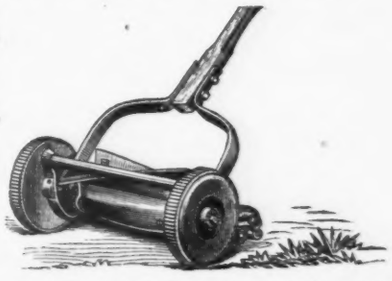

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We are the oldest and most extensive manufacturers of **LAWN MOWERS** in America.

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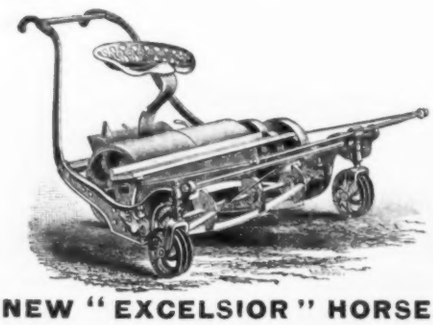

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Every Lawn Mower we manufacture is FULLY WARRANTED.

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"Mohawk" Solid Wiper " "
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THE IMPROVED F. & N. LAWN MOWER

Is well made, has many points of superiority over others, yet avoiding their defects. Compactness, durability, lightness of draft, clean cutting and ease of operation are its principal features.

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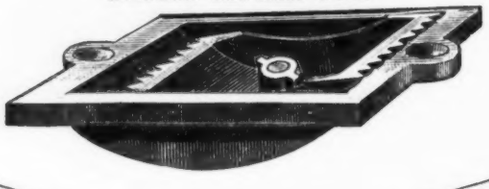
THE CRESCENT BENCH HOOK.

(PATENT APPLIED FOR.



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These vases are made with a reservoir for water, which is drawn up into the earth by capillary attraction, affording a constant and even supply of moisture to the plants.

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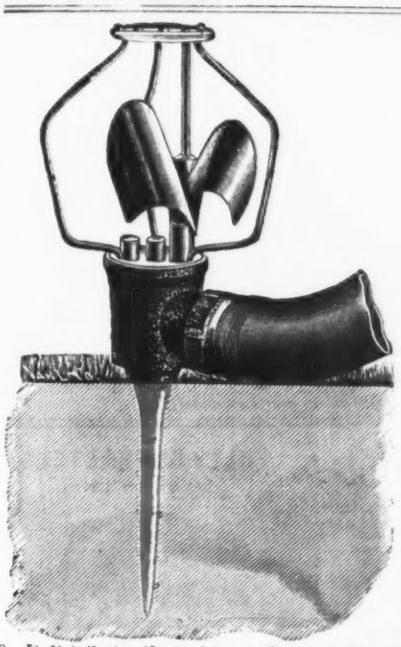

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BONNETTE'S ARC LAWN SPRINKLER.

Patented Oct. 20, 1891.

This Sprinkler was invented by a **DRY GOODS MAN** in Bay City, Mich. He noticed that when his neighbors set out their sprinklers, they wet all over the sidewalks as well as the lawns.

On going back and forth to the store he was often forced into the middle of the street to avoid a shower from the sprinkler. Ladies often ruined their dresses from this source.

It set him to thinking. Sprinklers should not be a nuisance. Could one be made that would sprink ', if desired, in a half circle? He thought so. He commenced to work and experiment.

That was five years ago. It required lots of patience and there were many disappointmen s, but to-day,

NOTE THE RESULT.

Five good reasons why this is the best sprinkler to buy:

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4. **This is the only machine ever invented that will sprinkle water in a half-circle,** thus preventing the wetting of walks while thoroughly sprinkling the lawn.
5. It can be changed from a circle to a half-circle or *vice versa*, in five seconds.

We now claim to have the only perfect sprinkler in existence. It is simple, will not wear out nor clog up. Is well made and handsomely nickled, is boxed singly with full directions how to use. Its merits are, without question, pre-eminently superior to any other. Prices and samples sent upon application.

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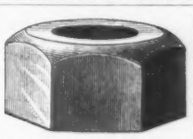

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Heavy Casters for Mill use.

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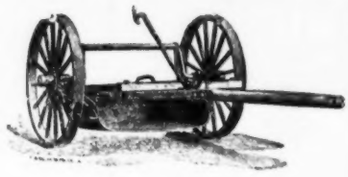

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WE ARE THE LARGEST MANUFACTURERS IN THIS LINE OF GOODS. SEND FOR OUR PRICES.

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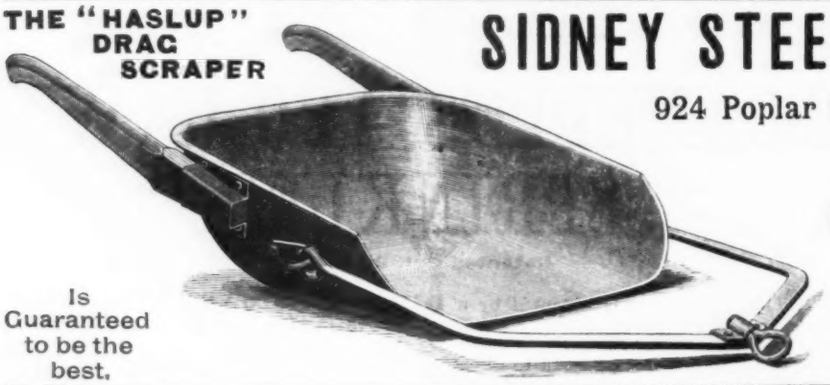

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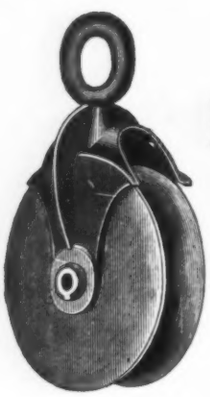
When buying goods of this character, why not purchase the best? It is the cheapest in the end. Try us on your next order.



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THE SCIENTIFIC SWEEP MILL
FOR TWO HORSES.
Grinds EAR CORN and SMALL GRAINS.
Special Cob Breaking Device and peculiar dress of Grinders. Gives BETTER WORK, MORE OF IT, WITH LESS WORK TO TEAM than others. Send for catalogue of this and
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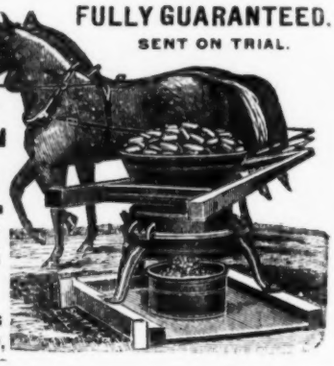

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Best, cheapest and strongest on the market. Can be put up in ten minutes. The only Carrier that dispenses with wood or iron track, and that works successfully on cable or rope. Sold by Hardware Dealers and Dealers in Agricultural Implements. Write for Catalogue and Price List. Agents wanted.
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All Standard Sizes, Regular or Odd, to Order.

In 200 lb. Kegs or Card Board boxes, convenient for JOBBERS.

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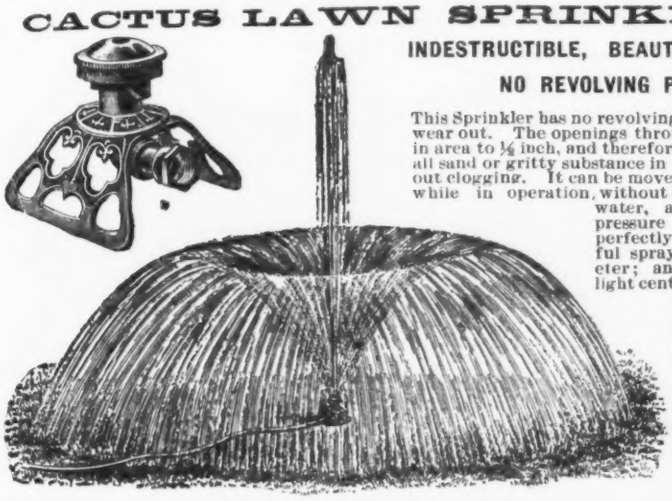

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NO REVOLVING PARTS.

This Sprinkler has no revolving parts to leak or wear out. The openings throughout are equal in area to ¼ inch, and therefore will pass freely all sand or gritty substance in the water without clogging. It can be moved about the lawn while in operation, without turning off the water, and with a low pressure will distribute a perfectly even and beautiful spray 30 feet in diameter; and in addition a light center fountain spray 15 to 18 feet in height. It is recommended as the most durable, beautiful and cheapest Sprinkler in the market and is guaranteed to give entire satisfaction to any purchaser. For sale by all dealers.

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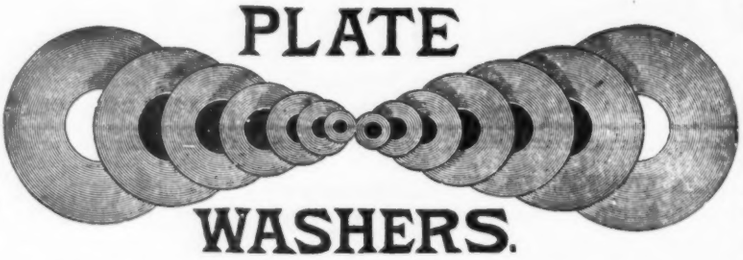

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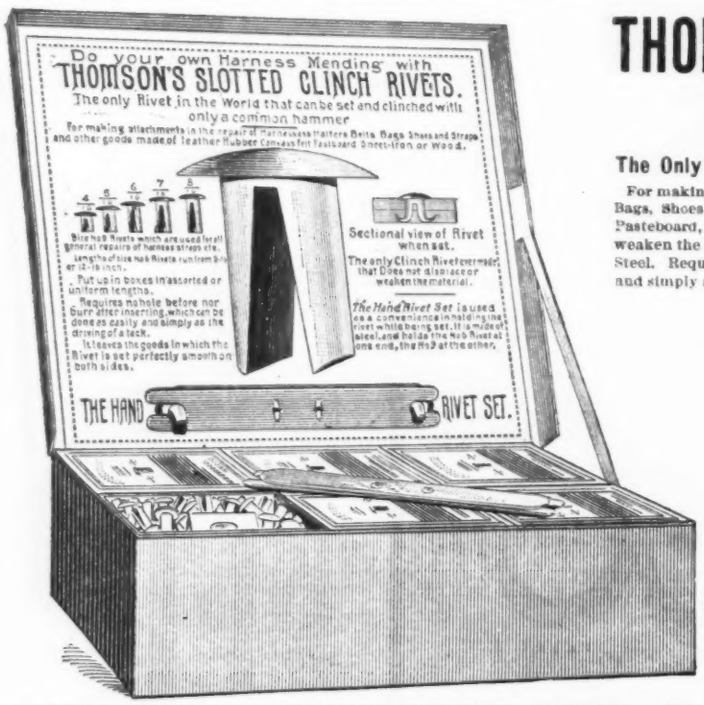
We have Special Machinery designed and patented by S. J. Shimer & Sons, with Automatic Feed, cutting from four to six Washers at every stroke.

EVERY WASHER IS PERFECTLY FLAT WITH HOLE IN TRUE CENTRE.

All standard sizes kept in stock. Irregular or odd sizes made promptly to order.



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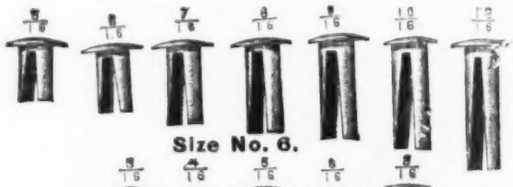
For making attachments in the manufacture or repair of Harnesses, Halters, Belts, Bags, Shoes and Straps, and other goods made of Leather, Rubber, Canvas, Felt, Pasteboard, Sheet Iron or Wood. The only Clinch Rivet that does not displace or weaken the material. It is tough and very strong, being made from solid Annealed Steel. Requires no hole before, nor burr after inserting, which can be done as easily and simply as the driving of a tack.



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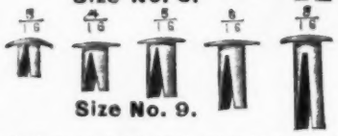

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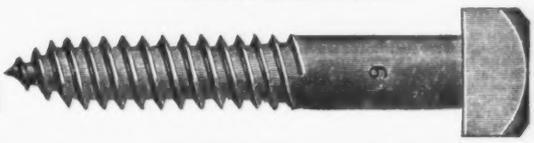

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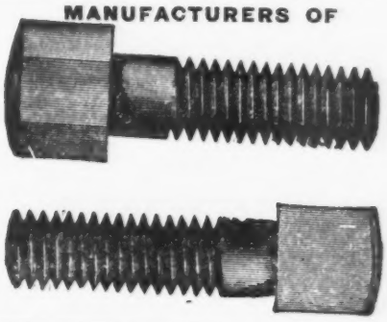

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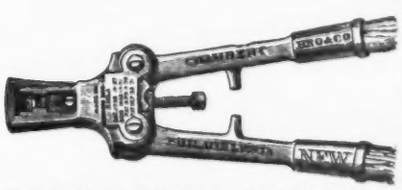

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(See Alphabetical Index, Page 114.)

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Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Kames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. W. & Co., Gloucester, Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grinding Mills.
Foos Mfg. Co, Springfield, O.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Coburn Trolley Track Mfg Co, Holyoke, Mass
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Granam, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 85 Barclay, N. Y.
Surplus, Dunn & Alder, 91 Chambers St., New York.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Cleveland Fdy. Co., Cleveland, O.
Cop Iron, Hdw. Mfg. Co., Worcester, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Welland, Chas., 143 Chambers St., N.Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Carriers.
Peakley Mfg. Co., Cleveland, O.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.
Missouri Mal. Iron Co., St. Louis, Mo.

Hay Knives.
Hiram Holt & Co., East Wilton, Me.

Hog Rings and Ringers.
Hill, Hugh W. & Co., Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, L.D., N.Y
Stuart & Peterson Co., Phila., Pa.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N.Y.
National Horse Nail Co., Vergennes, Vt,

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St. N. Y.
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. H. & Co., Philadelphia.
Corning, Edw. & Co., 39 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Canliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 416 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Joist Hangers.
Duplex Hanger Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.
N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Graham, Emlen & Passmore, Phila, Pa
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Bonnette Arc Sprinkler Co., Bay City, Mich
Ette & Henger Mfg. Co, St. Louis, Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Athol, Mass.

Locks & Knobs. *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Buttan, Graham & Mathes, Pittsburgh Pa
Canton Combination Lock Co., Canton, Ohio.
Claflen Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H., Lockport, N. H.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E., son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
MacKinnon, J. A. Mch. Co., 23 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Dingee, J. H., Philadelphia, Pa.
Mordant, F. S. Co., Chicago.
Norfolk & Western R. R.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bethlehem, Pa.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg.
Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 527 to 544 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c., *Makers of.*
Allentown Rolling Mills, Allentown.
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

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Seibert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Philadelphia, Pa.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 85 Chambers St., N. Y. Belting and Packing Co., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N. J.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord. Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pilling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Spiral Weld Tube Co., 43 John, N. Y.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N. J.

Post Hole Diggers.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, F. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. H. & Co., Cincinnati, O
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Cleveland Hdw. Co., Cleveland, Ohio.
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Electric Cutlery Co., 91 Chambers, N. Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Grand Rapids Refrigerator Co., Grand Rapids, Mich.
Welland, Chas. 143 Chambers St., N. Y.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron F'dry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron & Steel Roofing Co., Cleveland, Ohio.
Johns, H. W Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Duplex Hanger Co,, Cleveland, O
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co, Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N. Y.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hdw. Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Belleville Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Camoridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St, N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ltd., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Heni y, M. C., Richmond, Ind.
Win low, Saml., Skate Mfg. Co., Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows, Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Cary, Alanson, 240-242 W. 29th St., N. Y
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co, Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co, Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth Mass.
Titchener, E. H. & Co., Binghamton, N. Y.

Steam Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutsman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill.
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N. Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.

Tack Hammers.
Richardson, J. C. & Co., Ridgway, Pa.

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros. Testing Mch. Co., Phila.

Testing Laboratories.
Riehle Bros. Testing Mch. Co, Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Tire Cement.
Am. Trading Co., 182 Front, St., N. Y.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co. New Haven, Conn.
Church & Sleight, 100 Fulton, N. Y.
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, Starrett, L. S., Athol, Mass.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Butts & Ordway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Standard Lighting Co., Cleveland, O

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tube Scrapers.
Johns, H. W. Mfg. Co., 57 Maiden Lane

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg, Pa.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Spiral Weld Tube Co., 5 & 7 Beekman St., New York.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills. *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Vases.
Walbridge & Co., Buffalo, N. Y.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.

Washers.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Water Heaters.
Kemp, Clarence M., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows.
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co,, Joliet, Ill.
Miller & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co, Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

Wire Nail and Tack Machines
Eckstein, Chas G & Co., 41 John N. Y

Wire Nails.
Amer. Wire Nail Co., Anderson, Ind.
Baackes Wire Nail Co., Cleveland, O,
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Klimer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill,
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches, *Manufacturers of.*
American Saw Co. Trenton, N. J.
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
Rhode Island Tool Co., Providence, R.I
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

Wringers.
Colby Wringer Co., Montpelier, Vt.

Zinc.
Edes, Edw. L., Plymouth, Mass.

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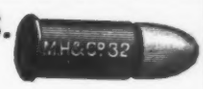

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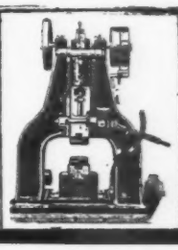

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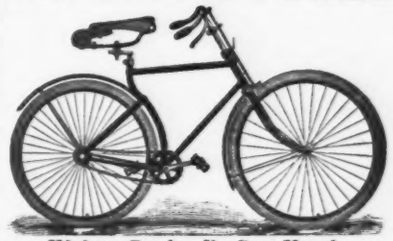

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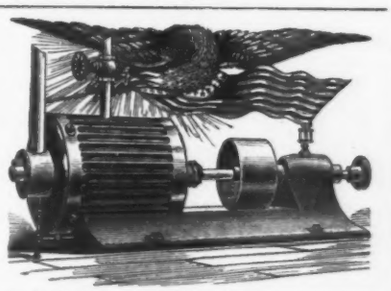

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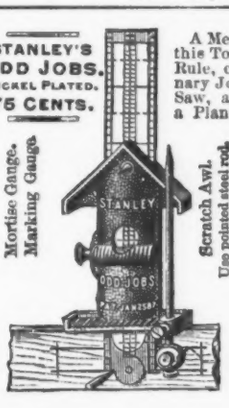

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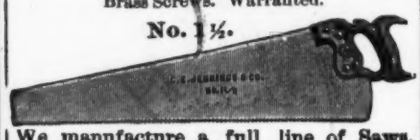
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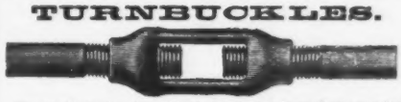

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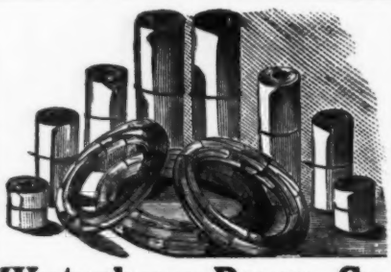
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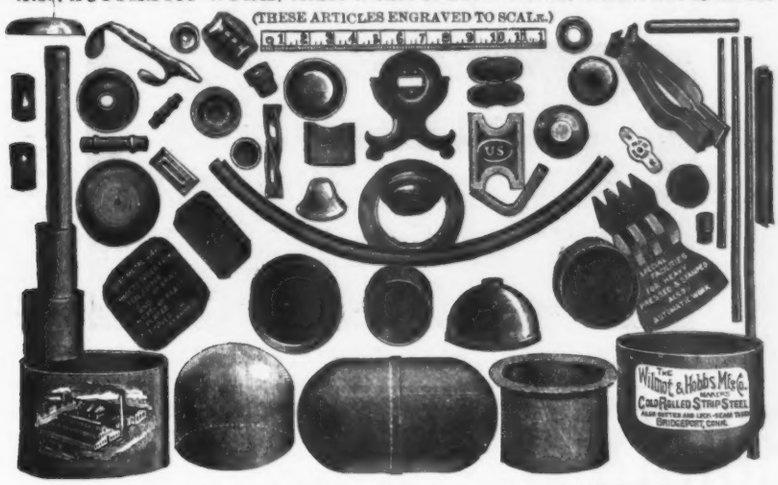

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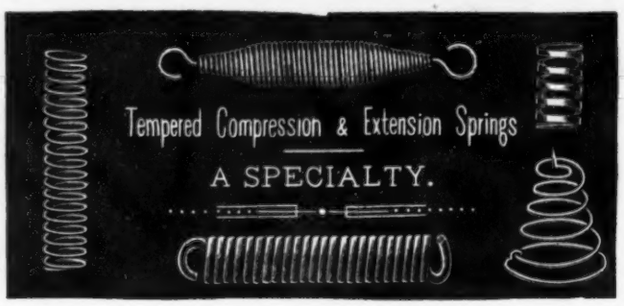

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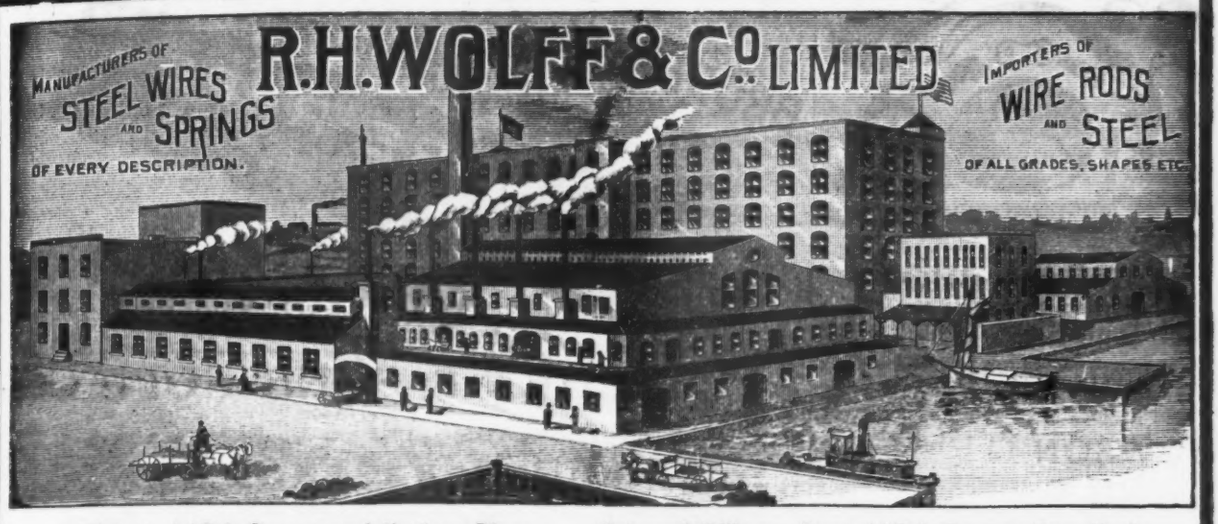

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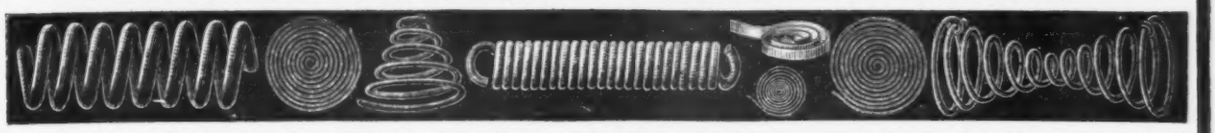

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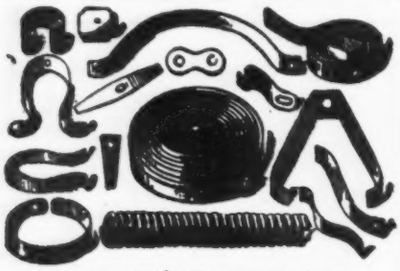

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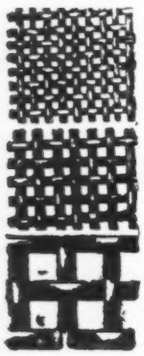

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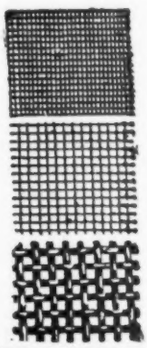

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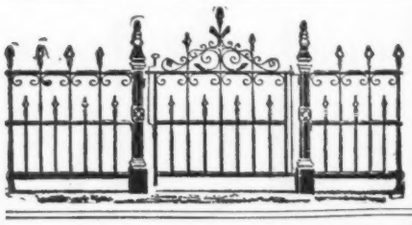

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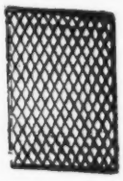

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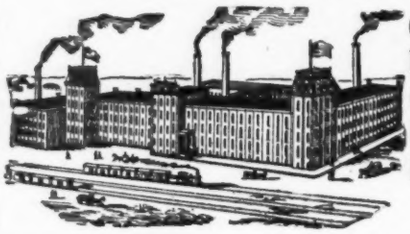

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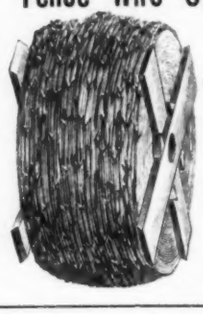

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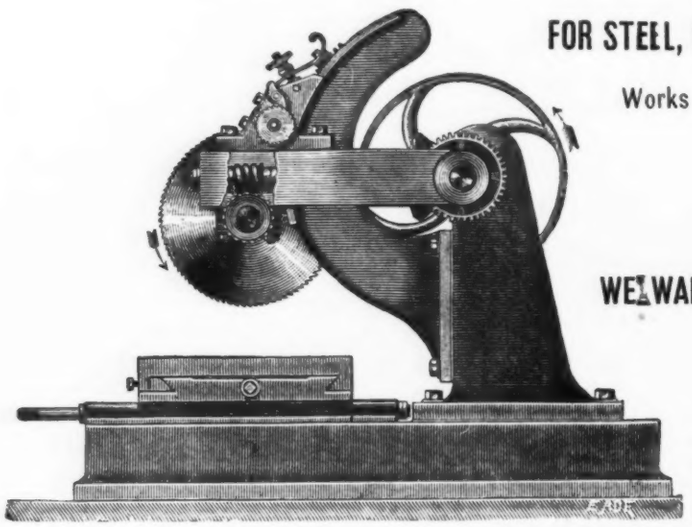

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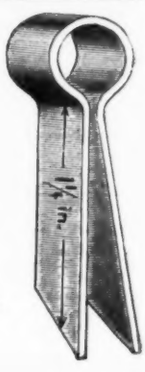

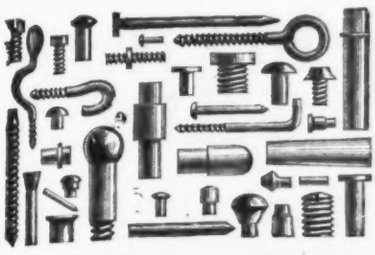

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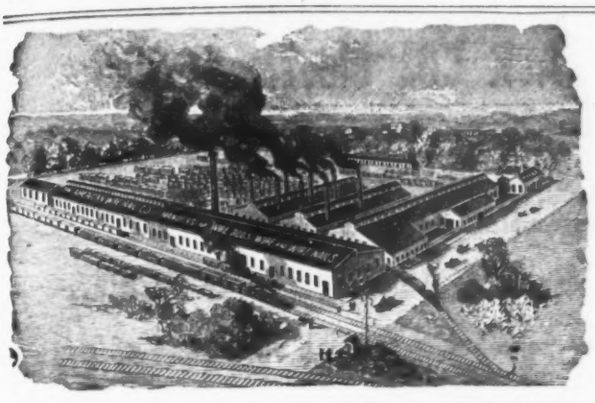

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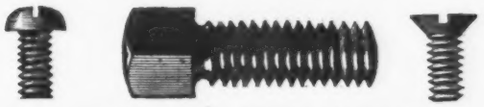

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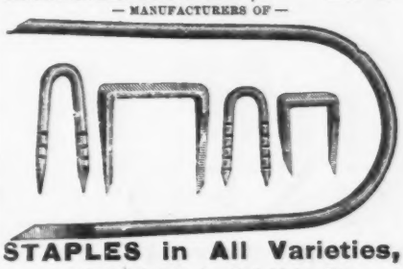

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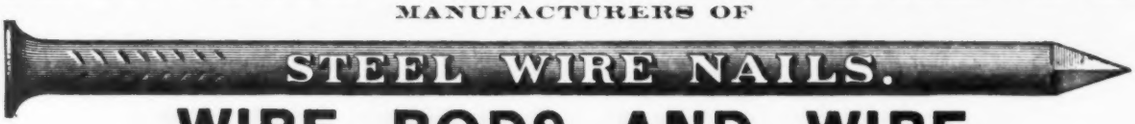

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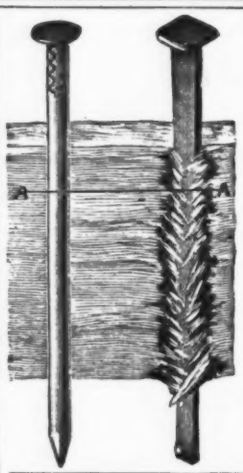

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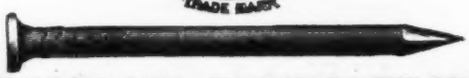

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Is cold forged, and entire surface has a metallic skin.

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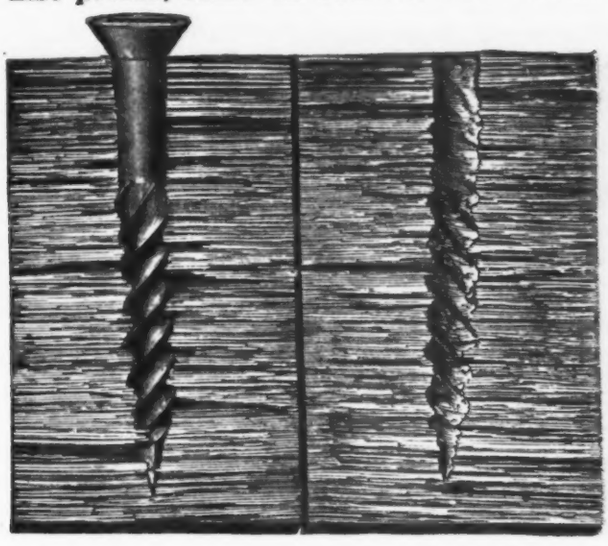

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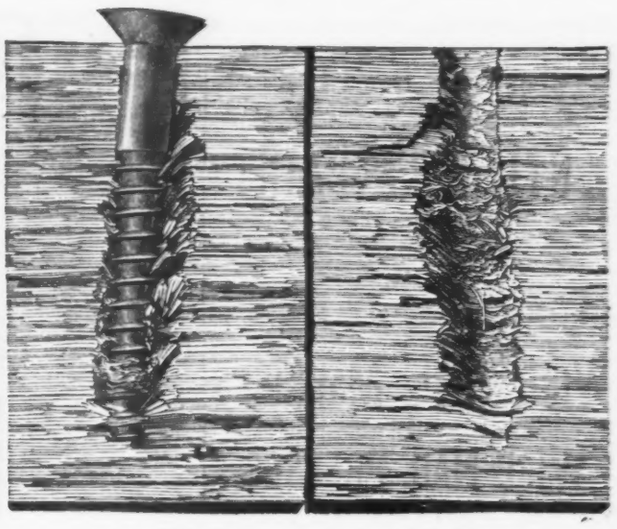

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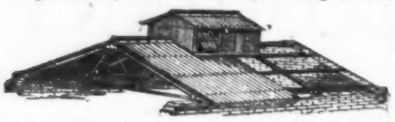

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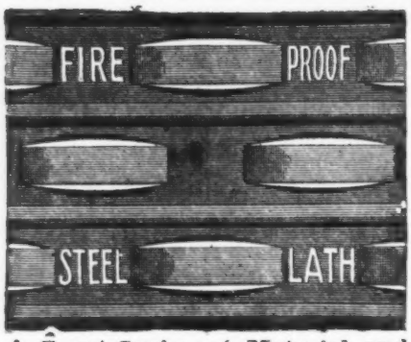

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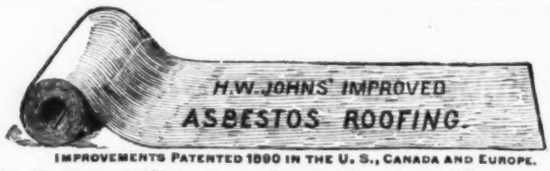

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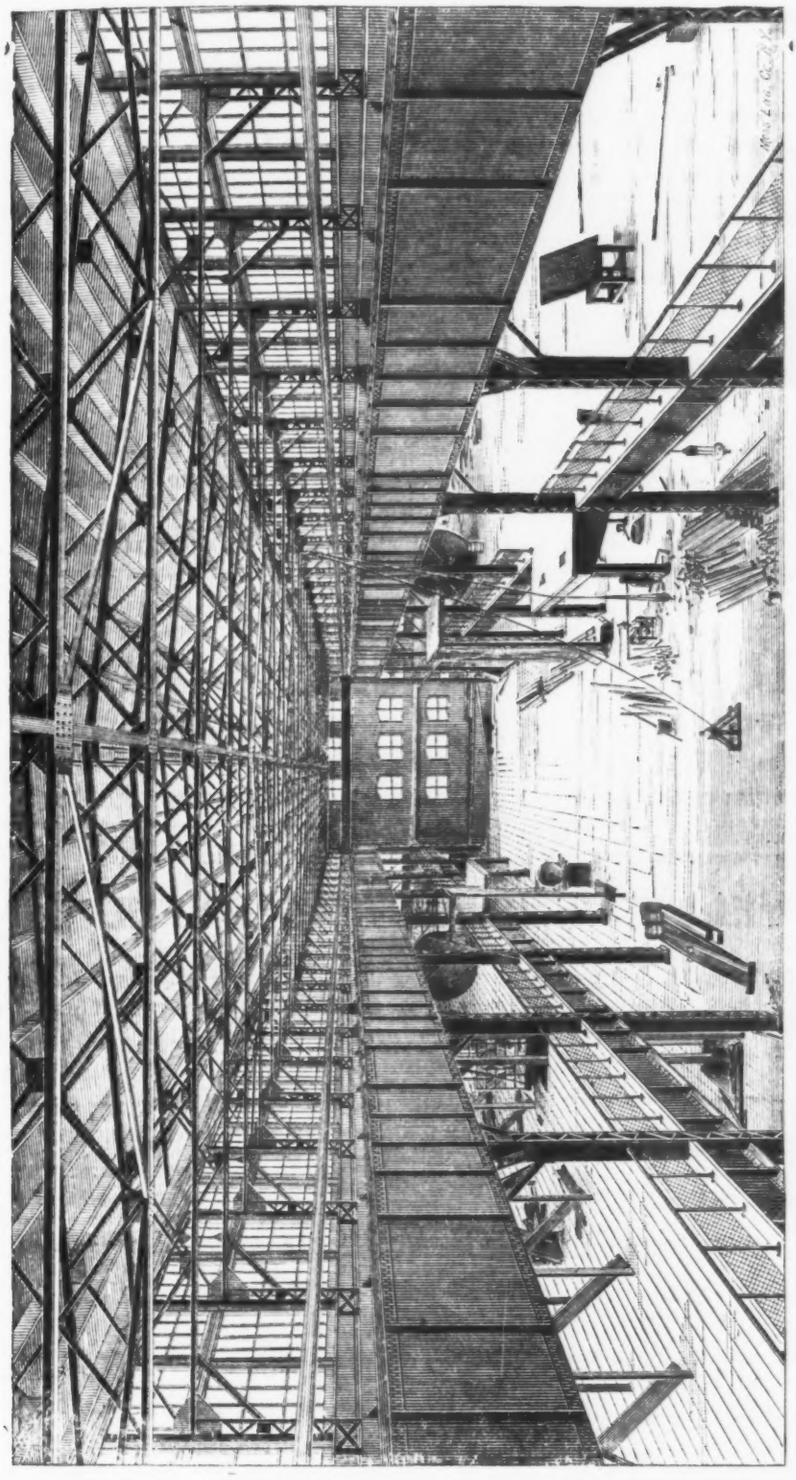

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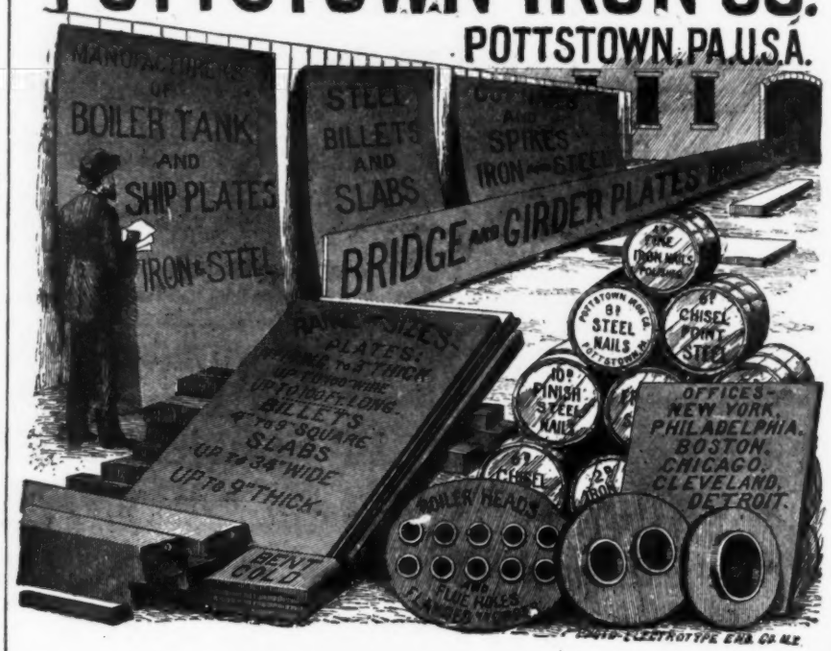

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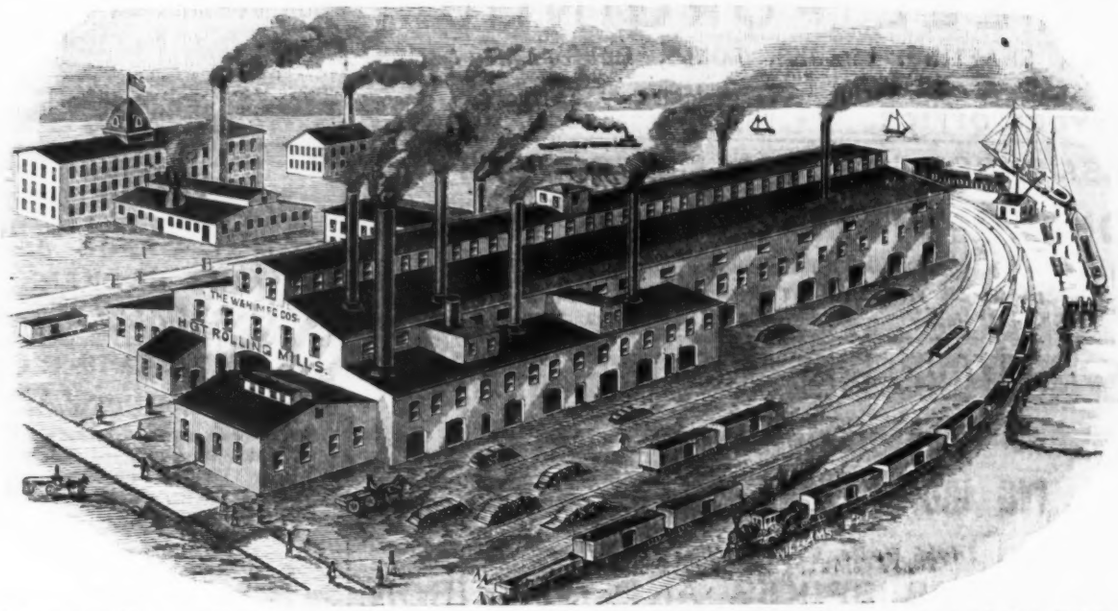

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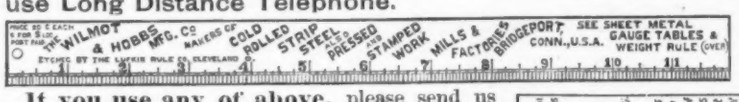

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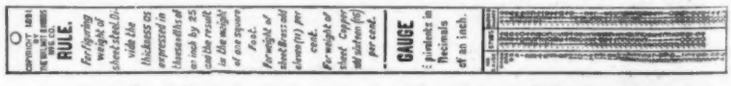

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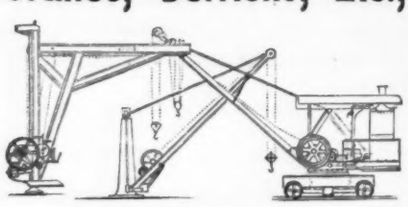

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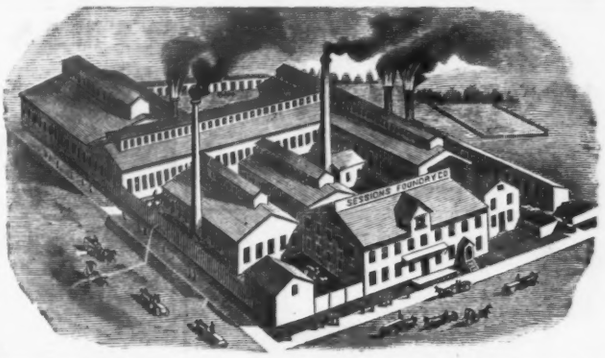

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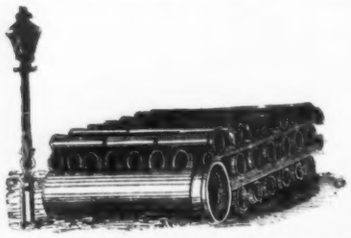

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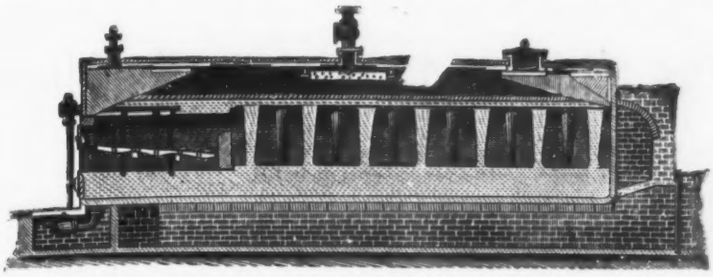

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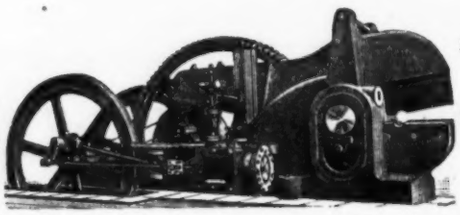

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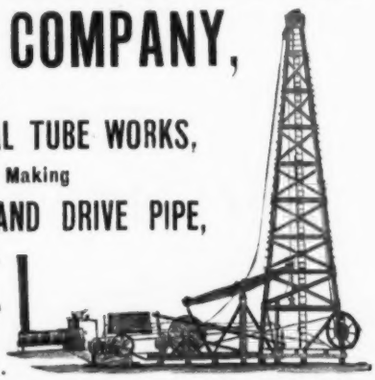

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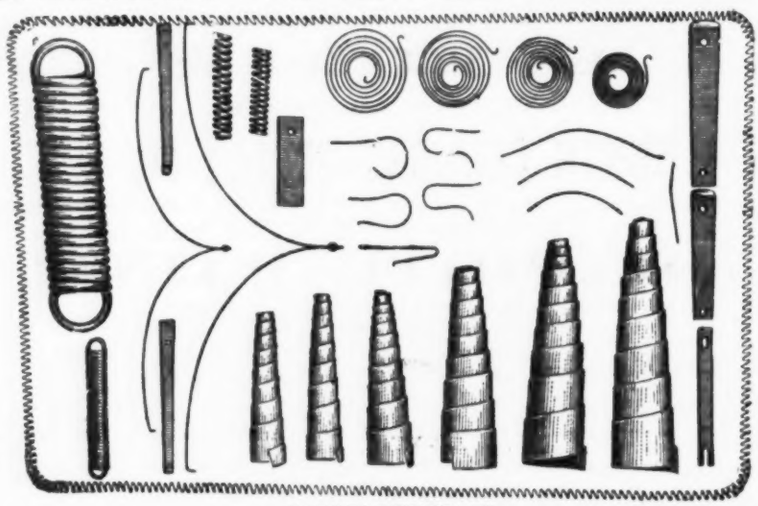

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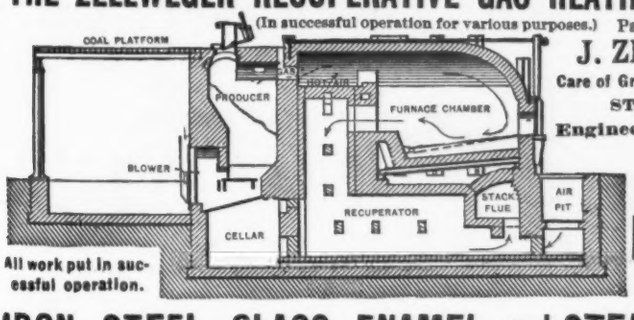

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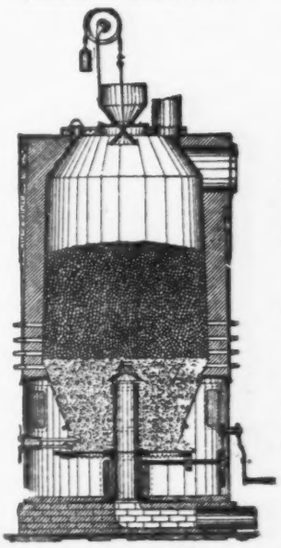

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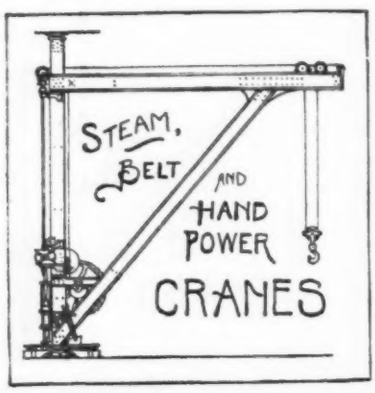

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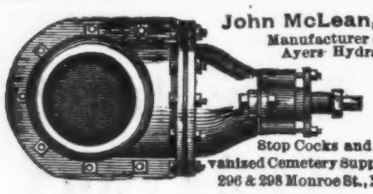

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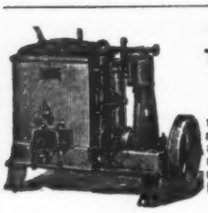

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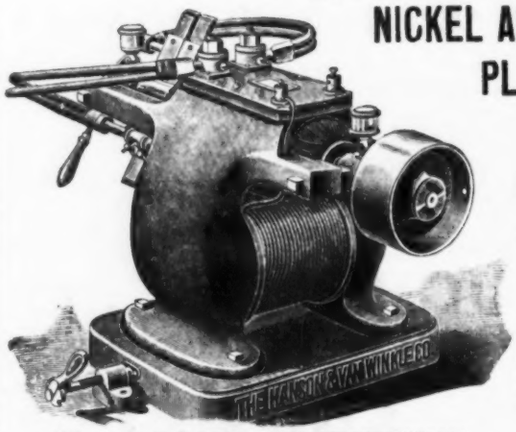

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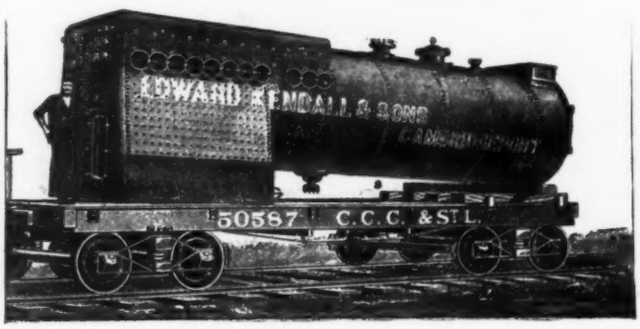

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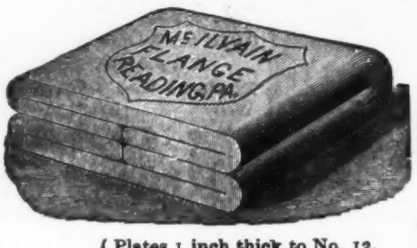

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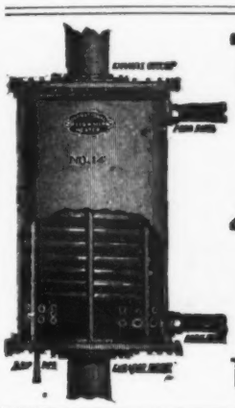

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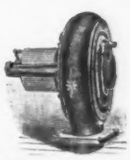

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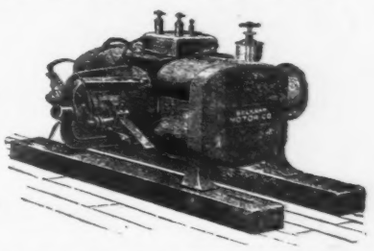

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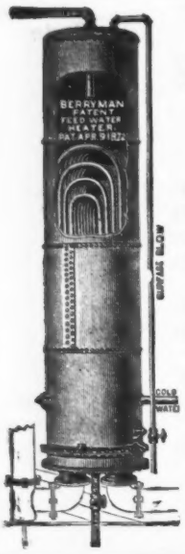

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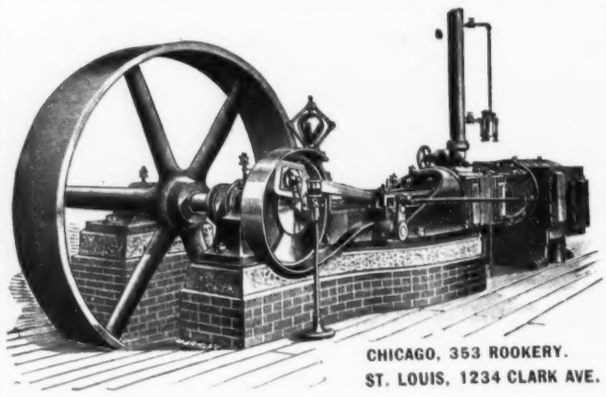

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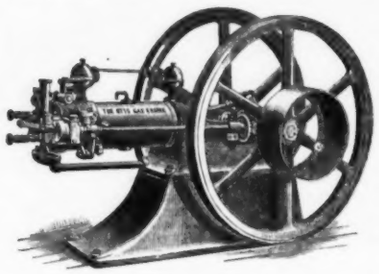

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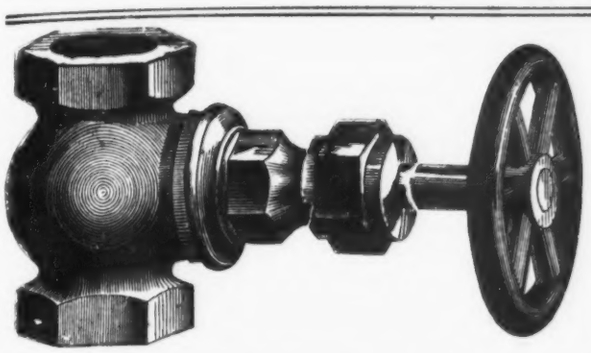

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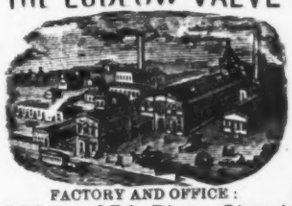

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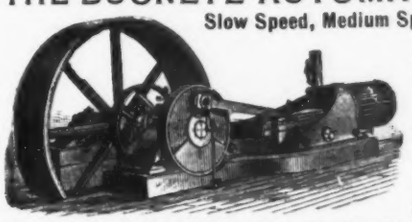

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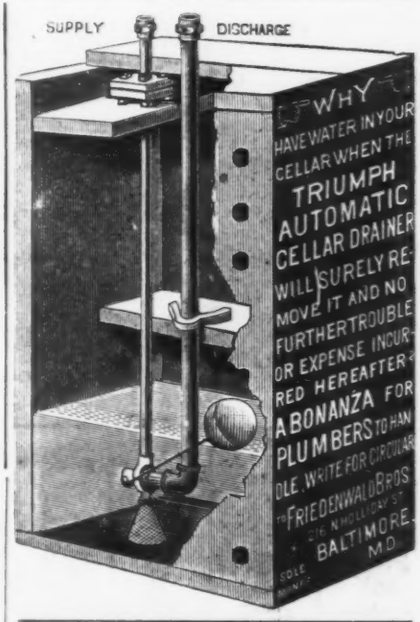

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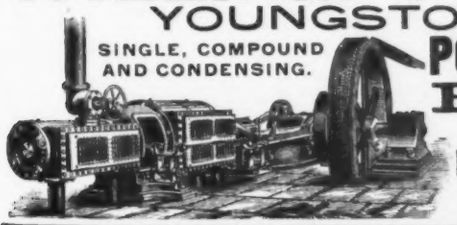

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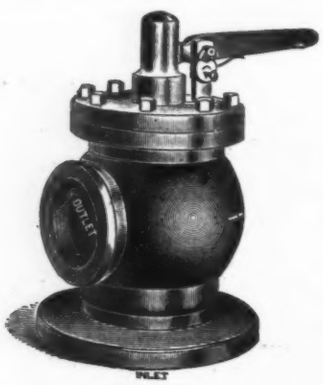

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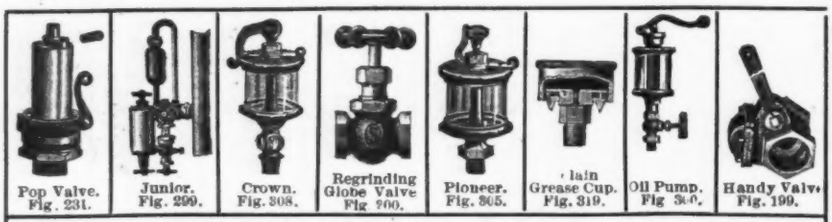

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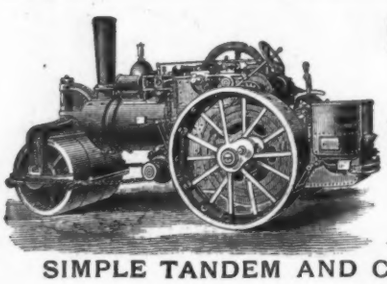

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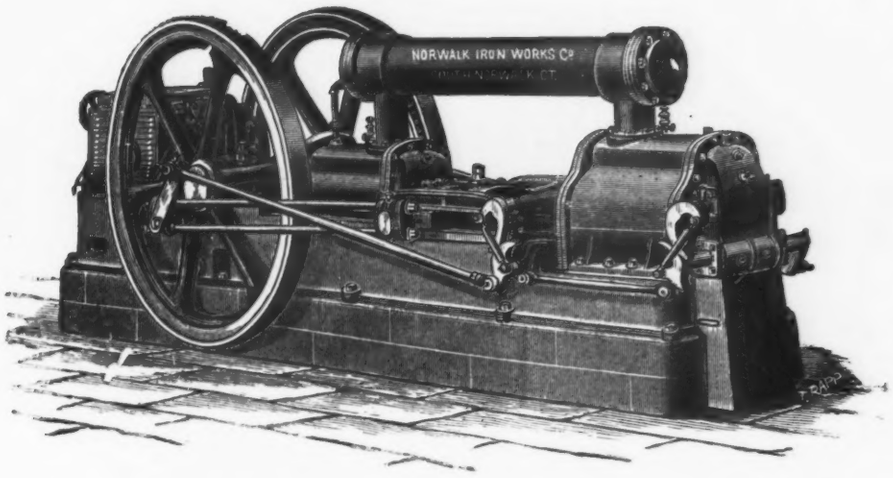

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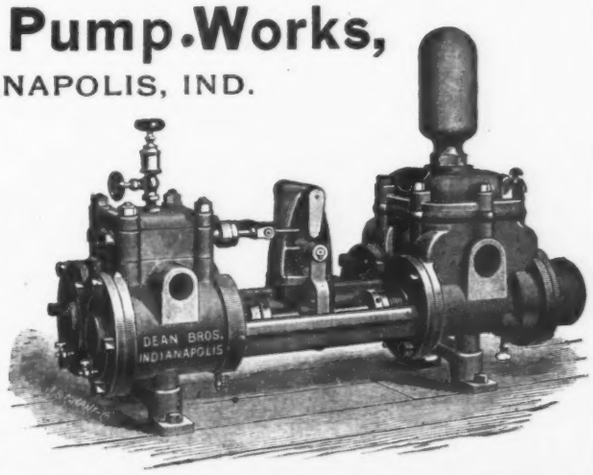

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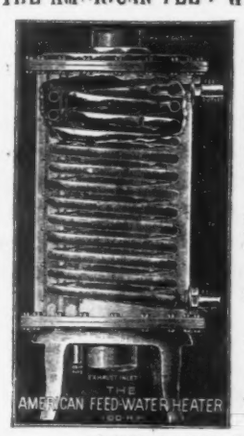

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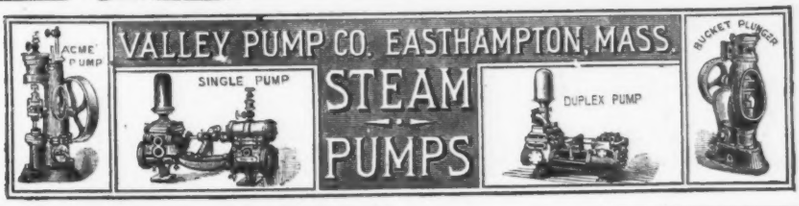

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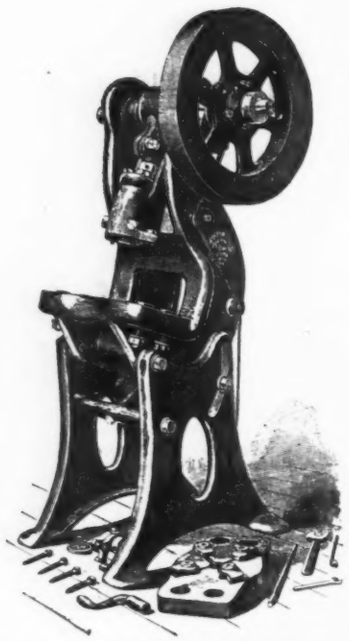

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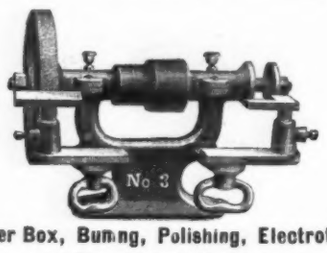

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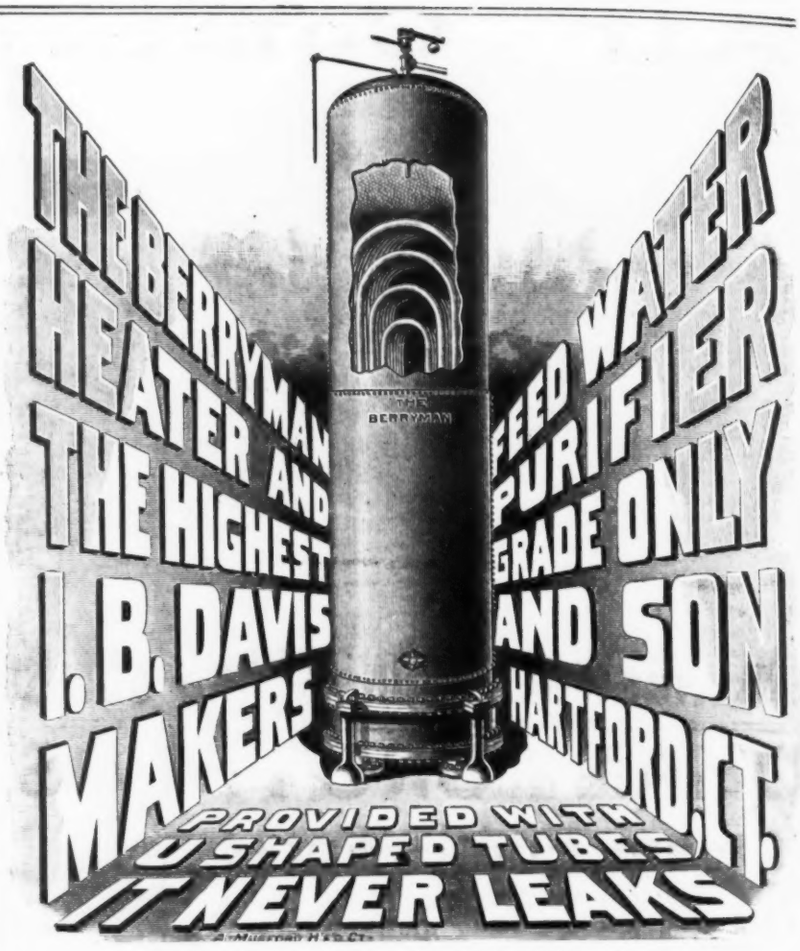

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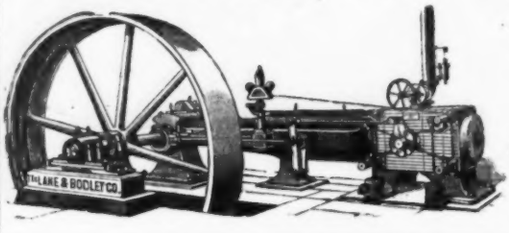

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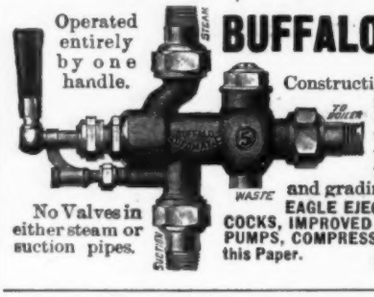

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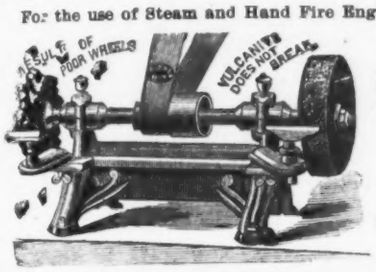

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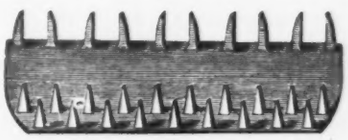

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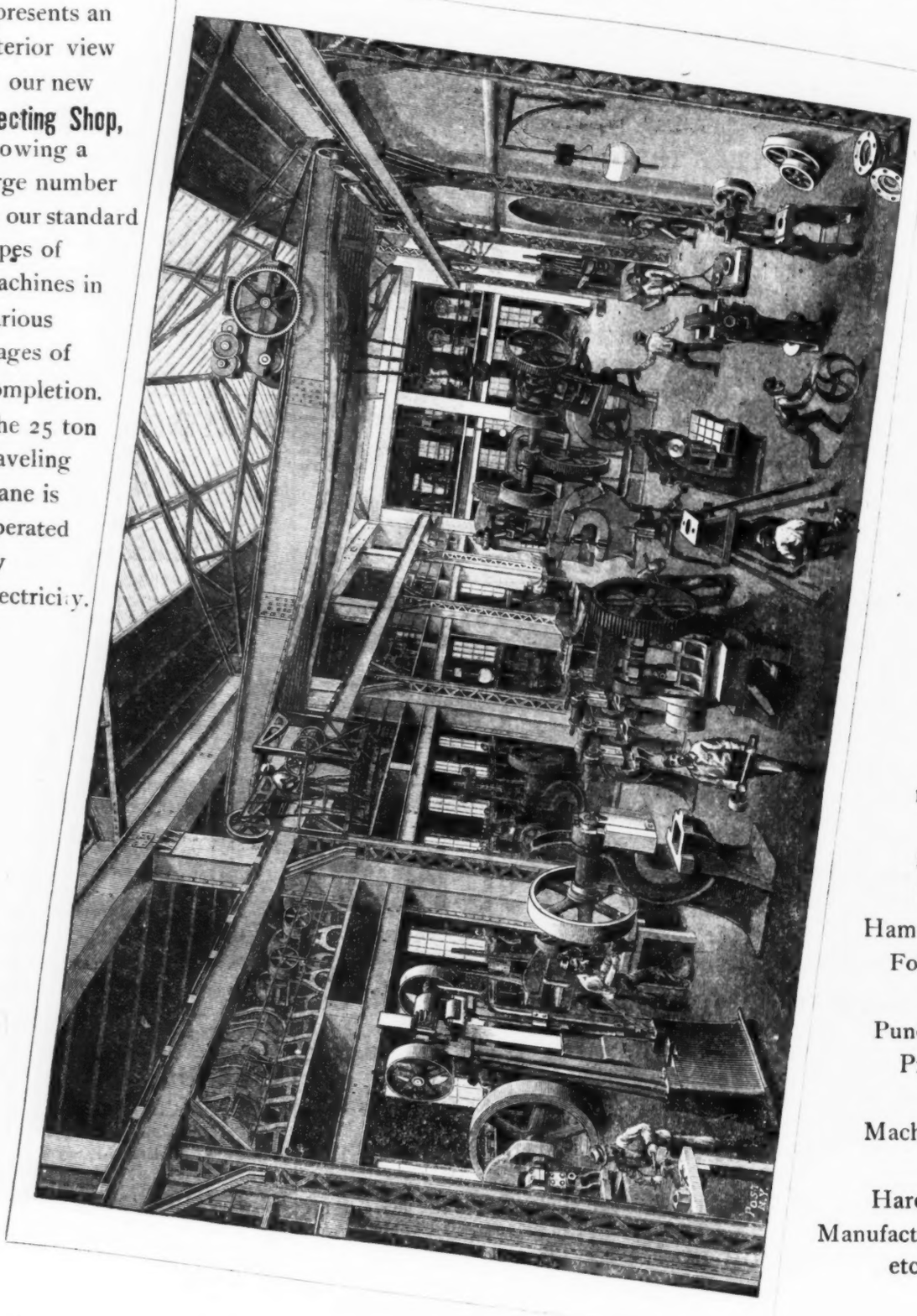

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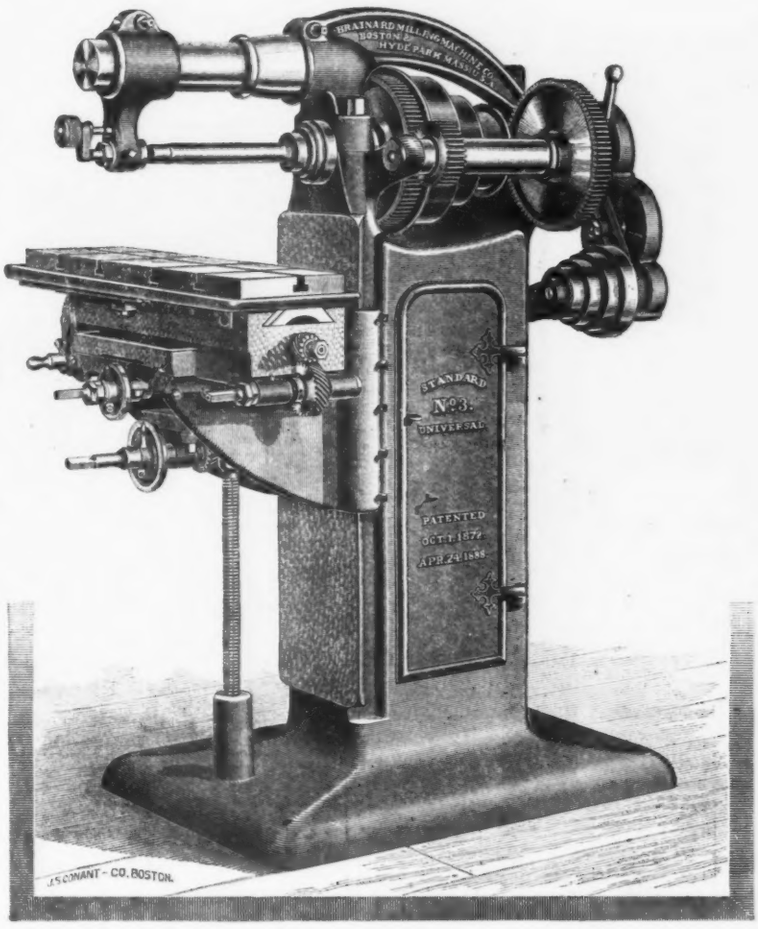

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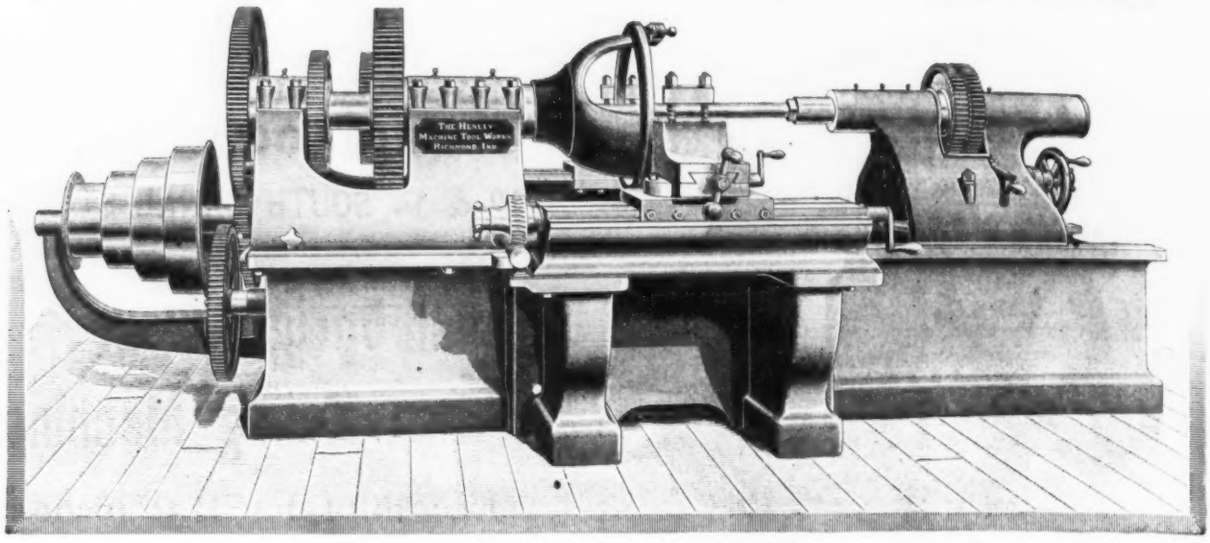

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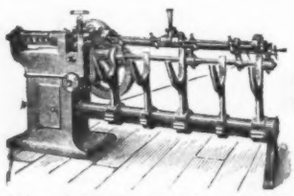

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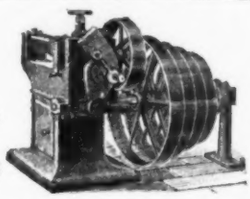

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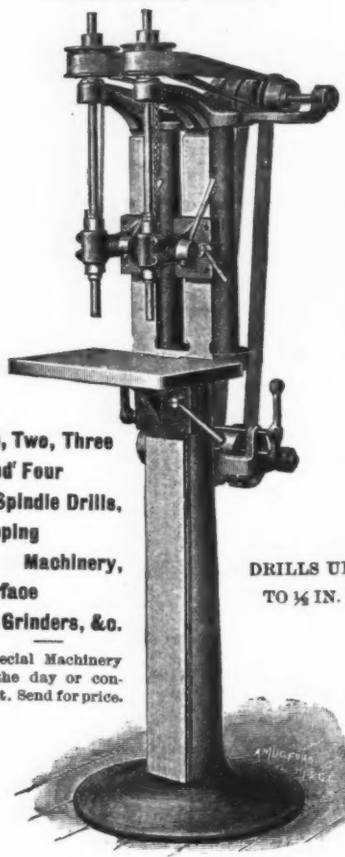

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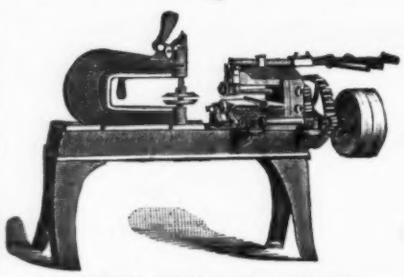

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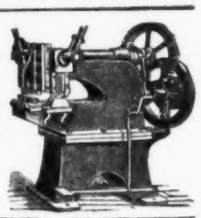

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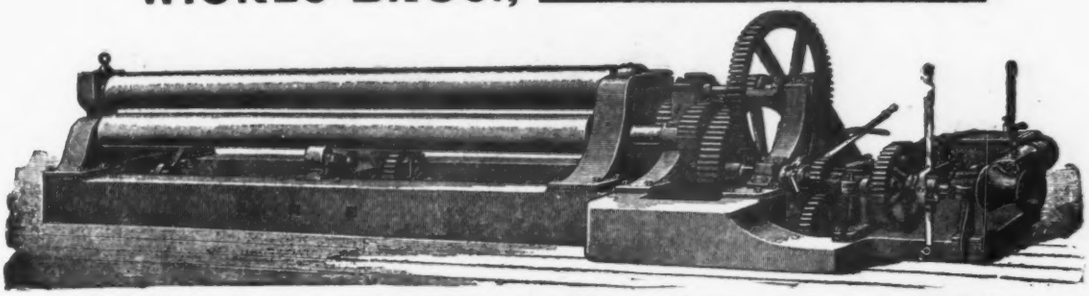

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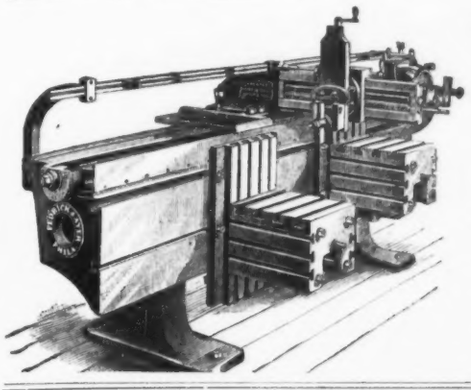

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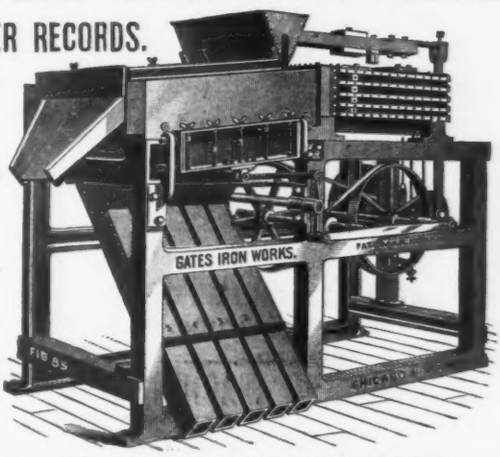

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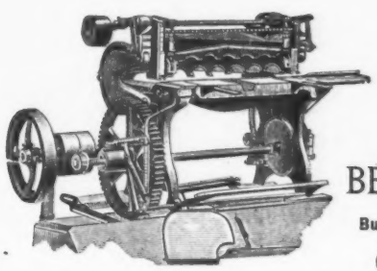

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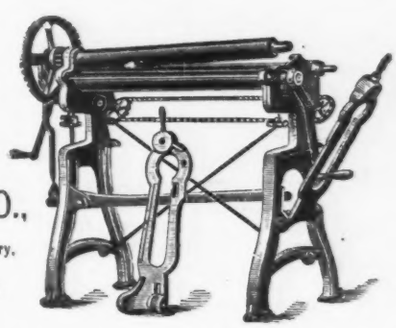

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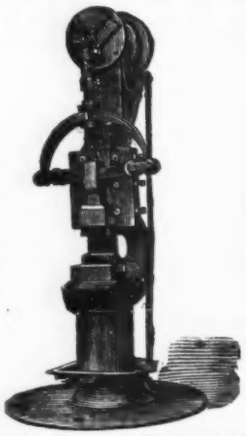

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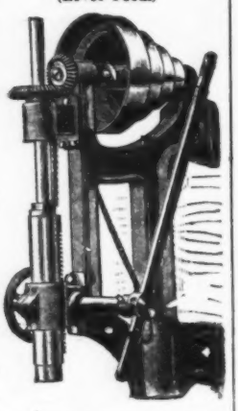

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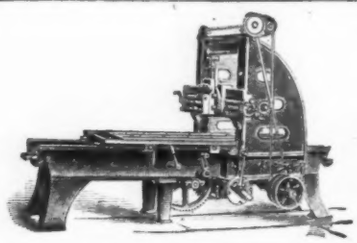

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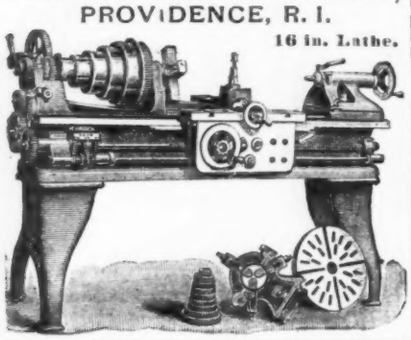

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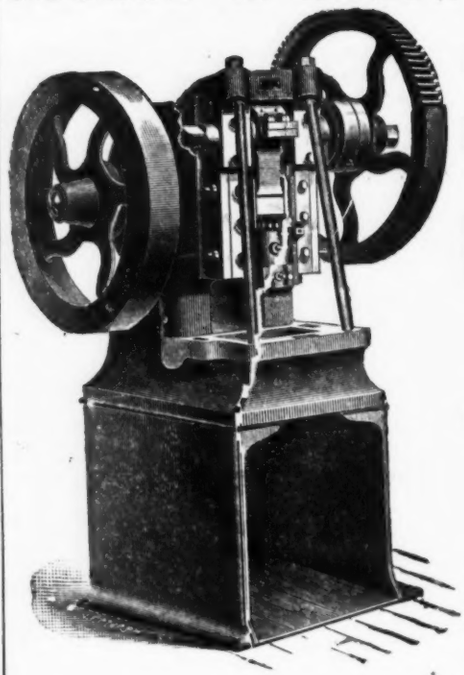

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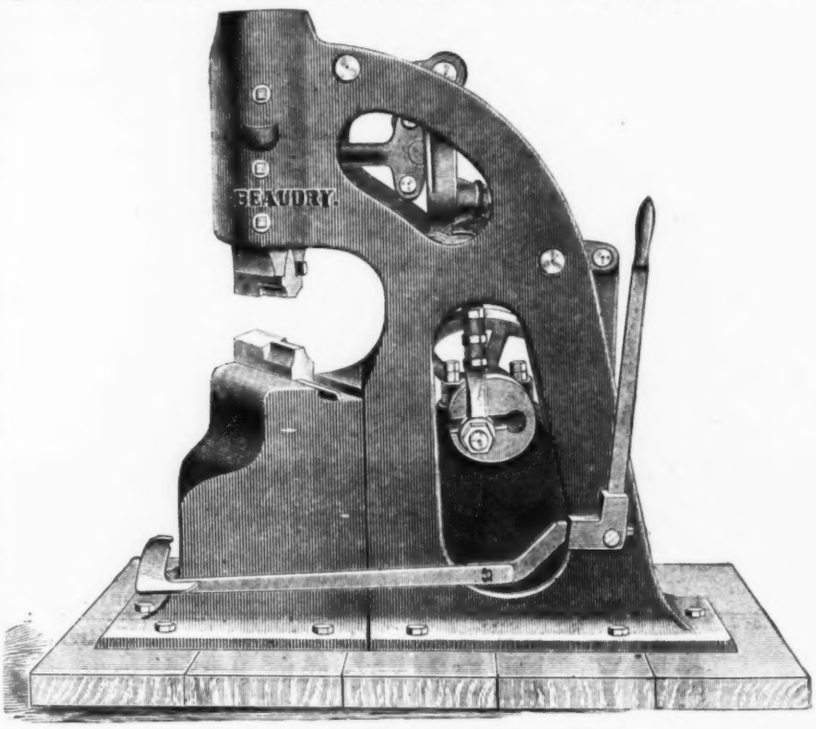

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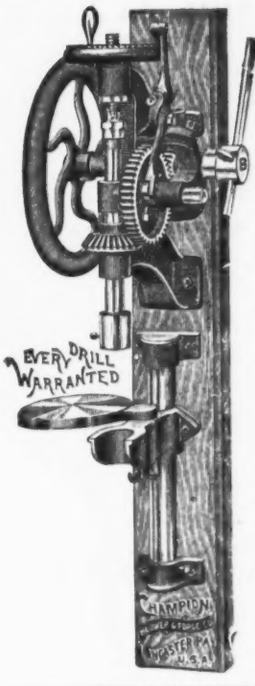

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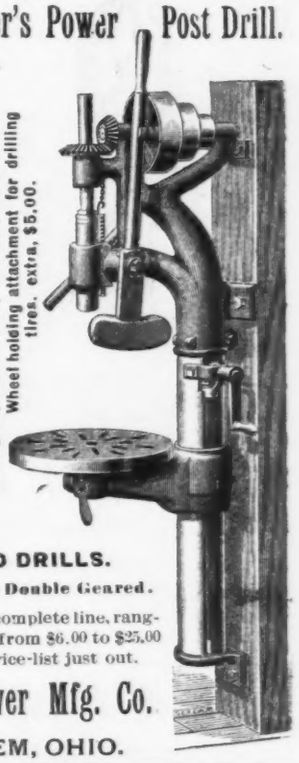

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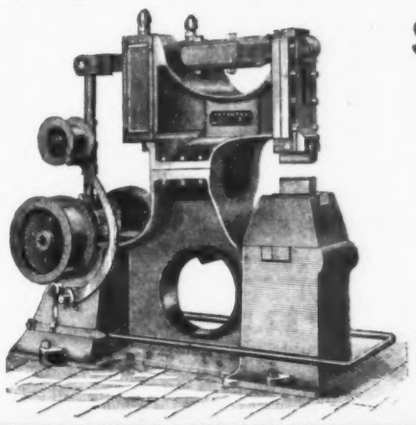

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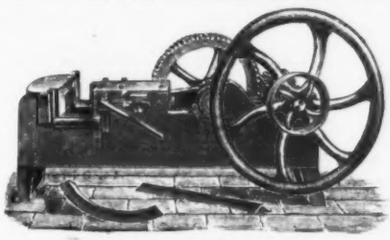

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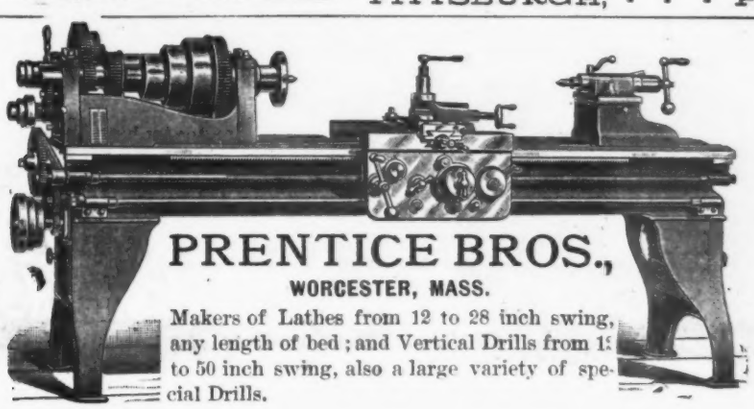

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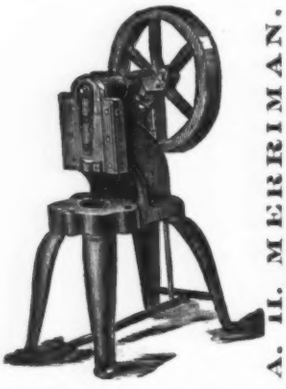

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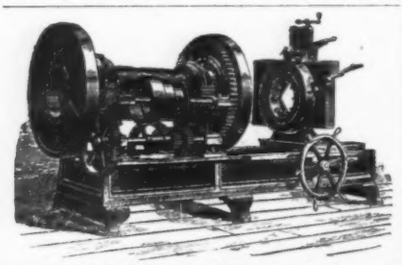

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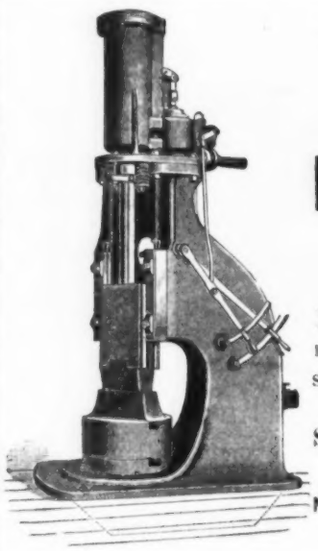

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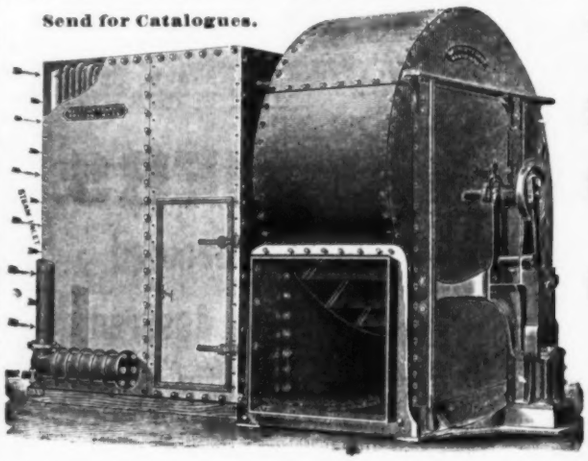

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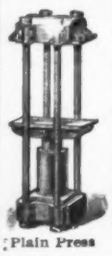
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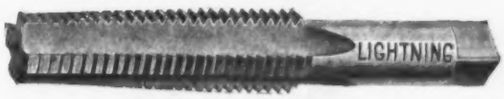

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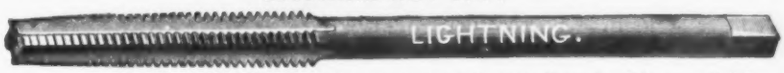

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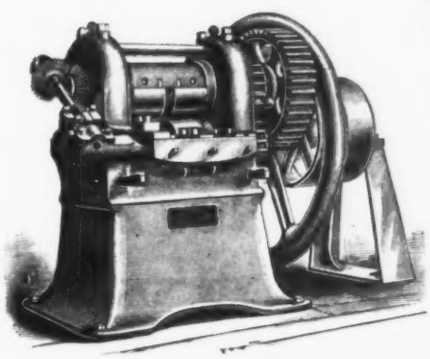

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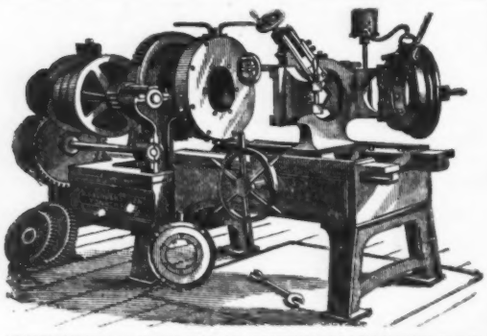

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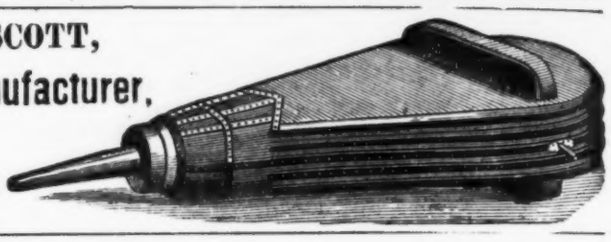

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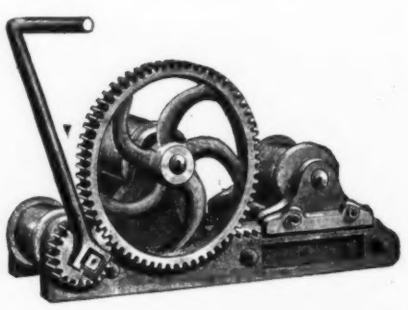

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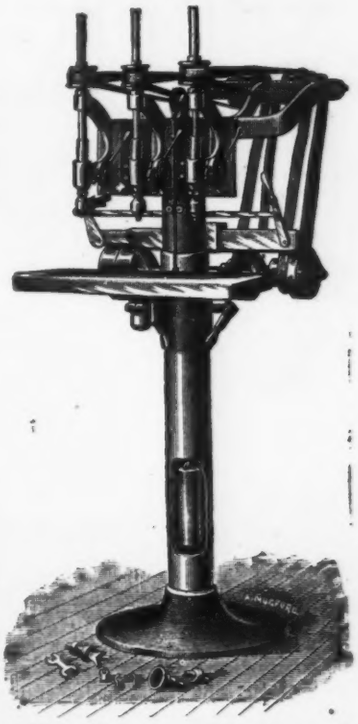

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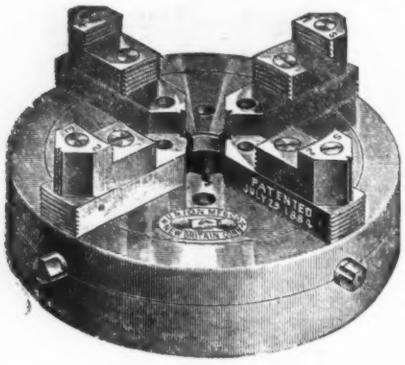

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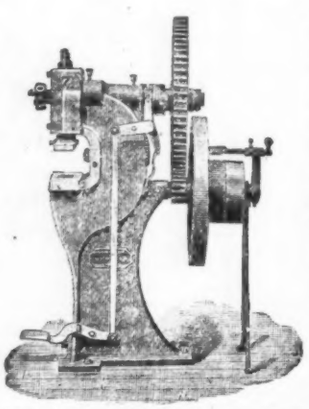

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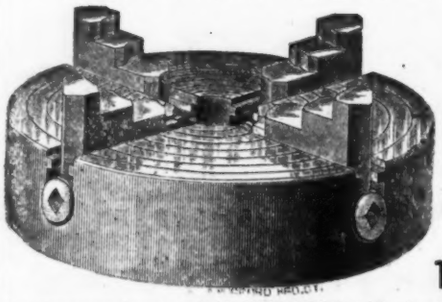

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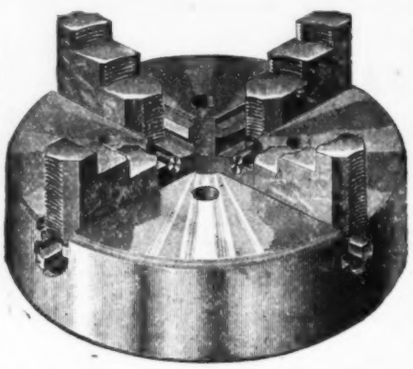

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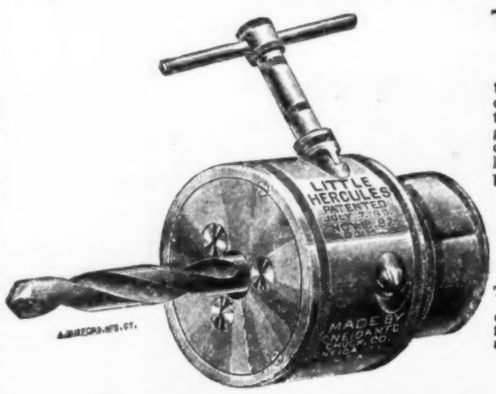

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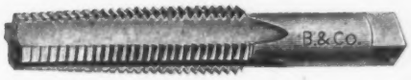

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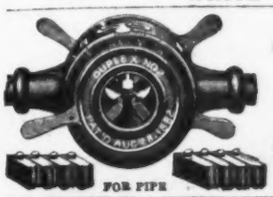

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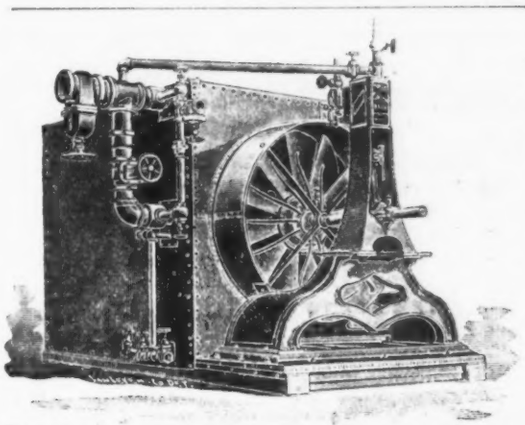

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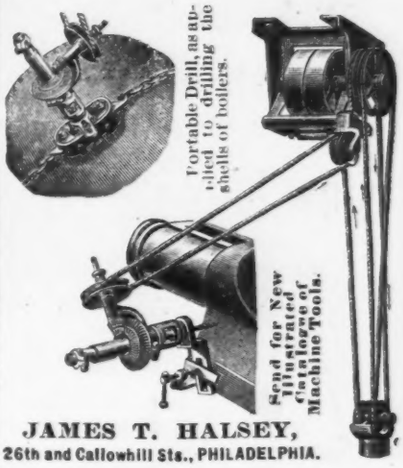

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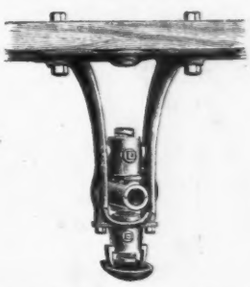

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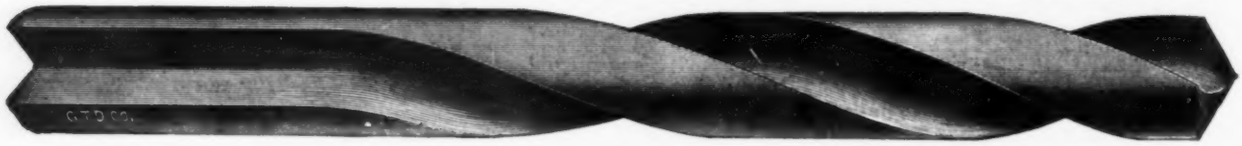

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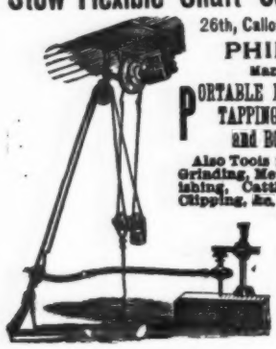

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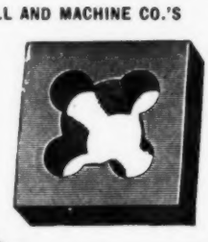

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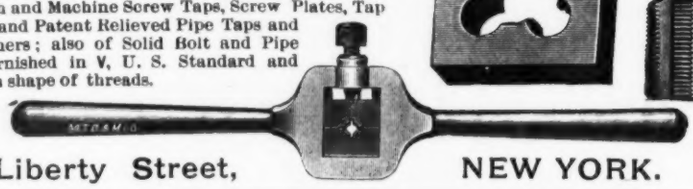

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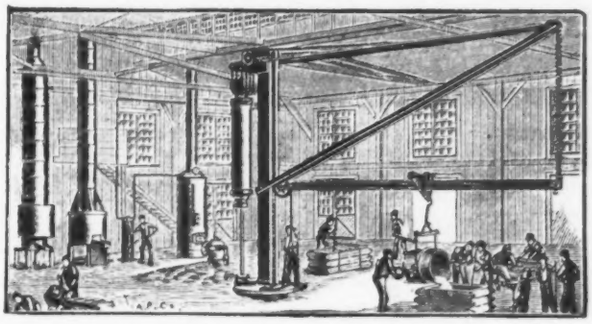

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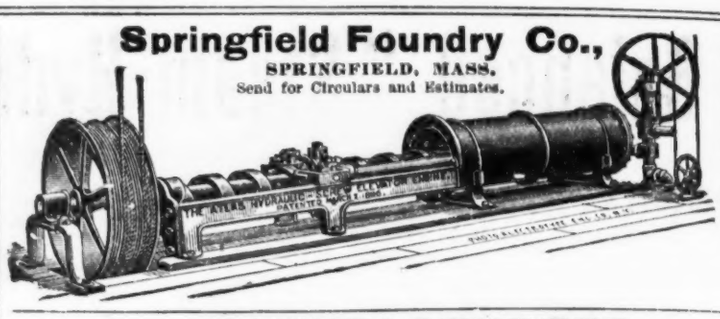

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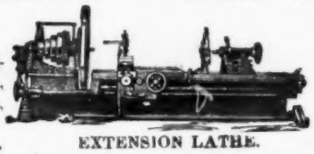

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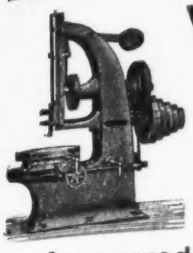

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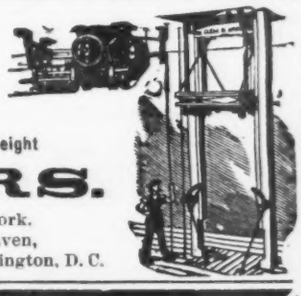

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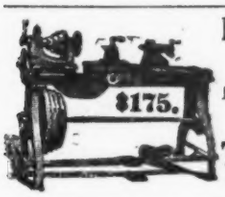

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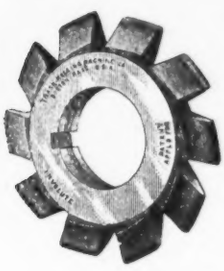

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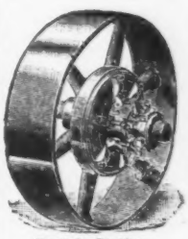

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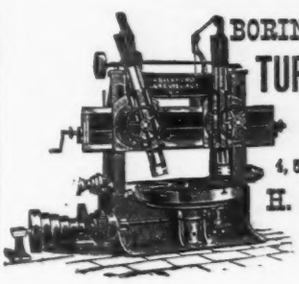

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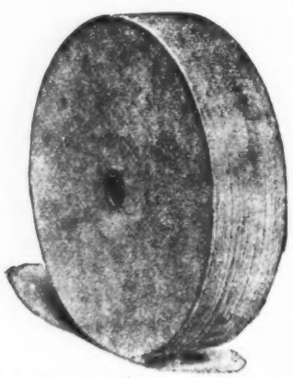

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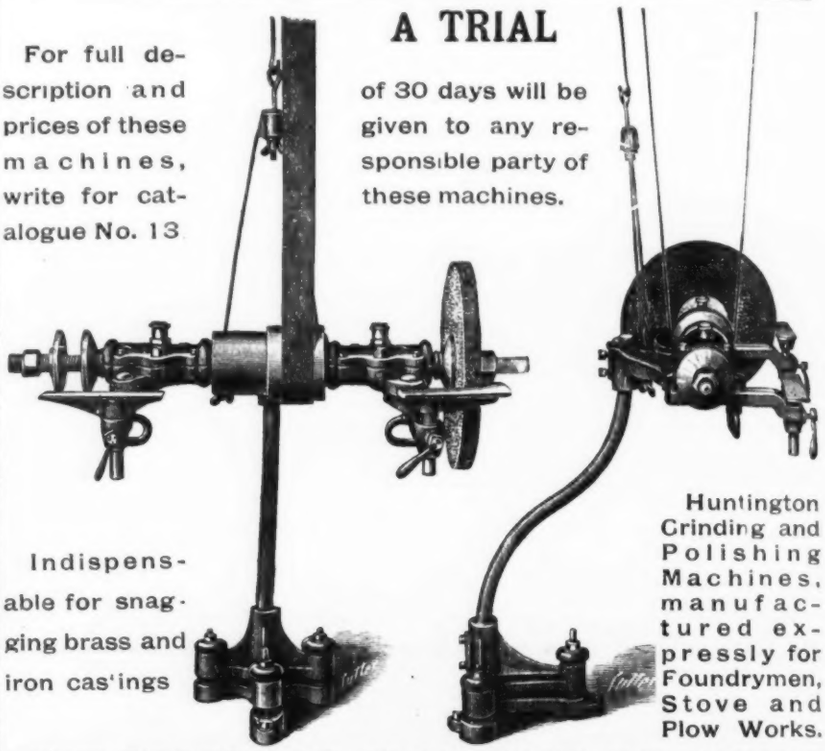

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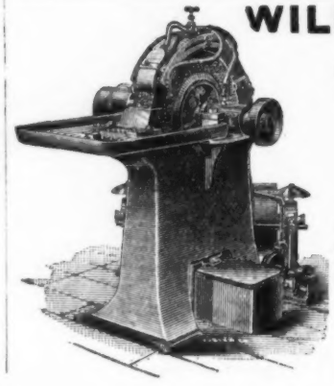

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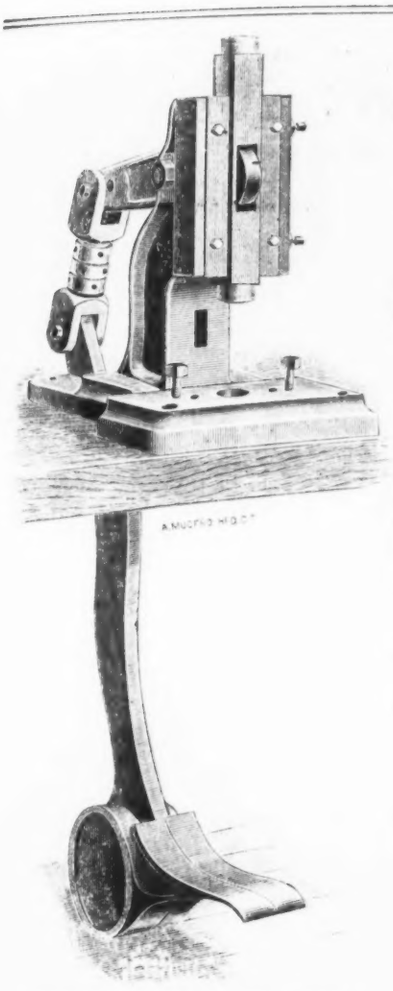

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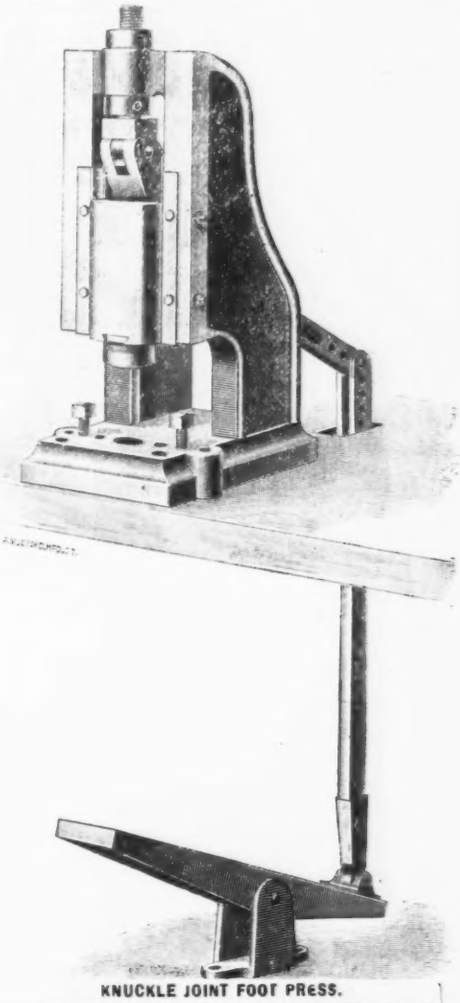

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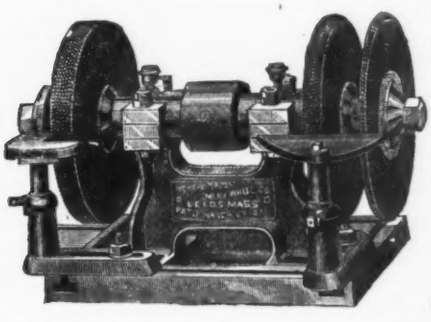

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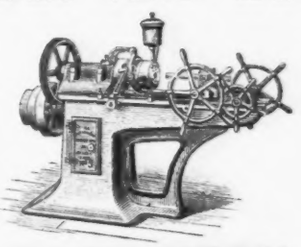

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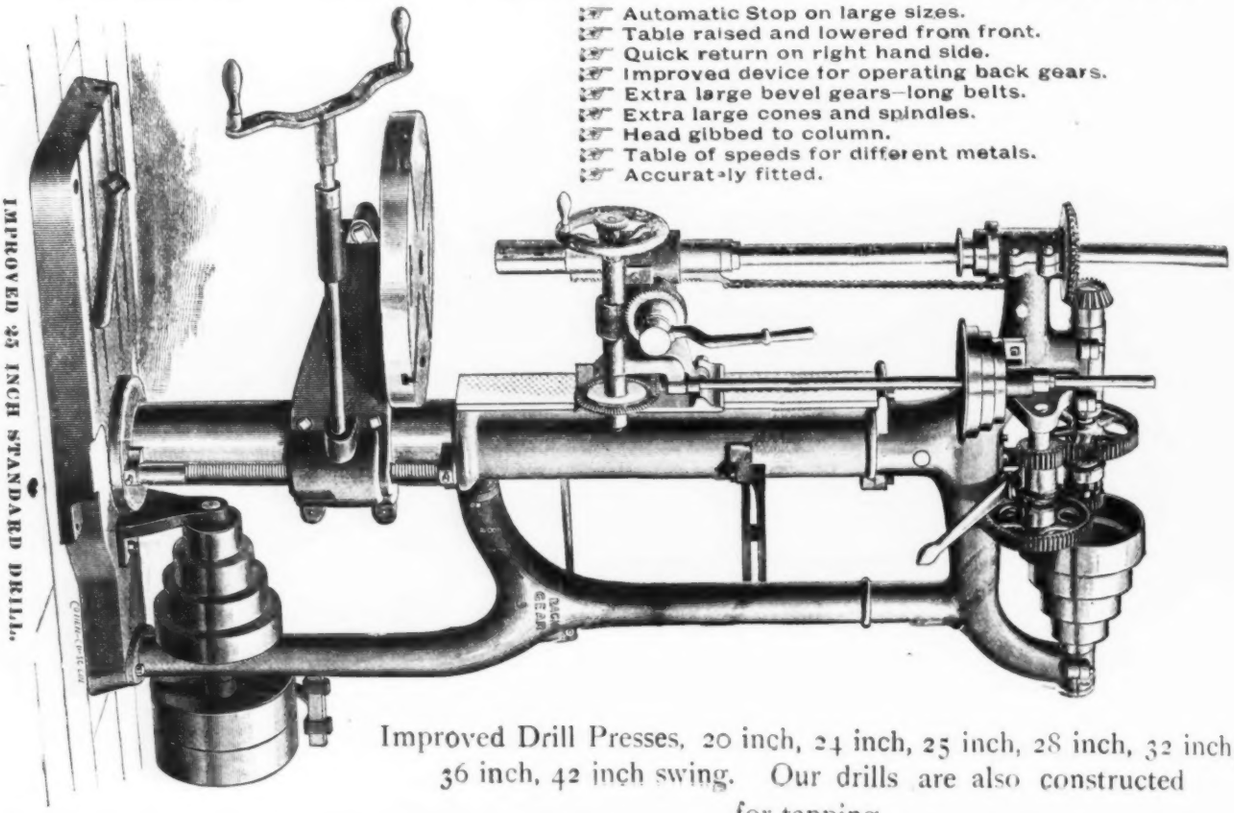

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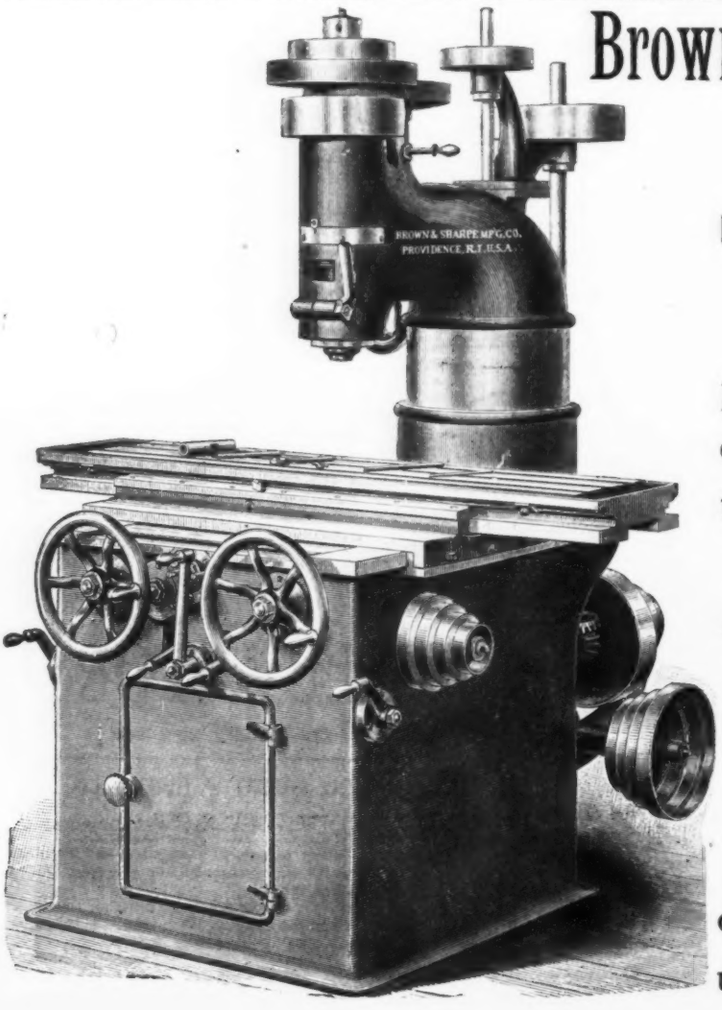

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The work is conveniently placed and the operations easily seen and controlled by the workmen.

The platen is 41 in. long, 13 in. wide, and has hand or automatic longitudinal and transverse feed.

Weight, 5100 lbs.

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1 20 x 20 x 4 " " "
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1 36 x 36 x 16 Planer, Whitcomb.
1 36 x 36 x 24 " "
1 32 x 36 x 12 " Rochester.
1 27 x 12 Lathe, New Haven.
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14 in. x 6 ft. and 8 ft. Plain Engine Lathes.
18 in. x 6 ft., 8 ft. and 10 ft. Plain Engine Lathes.
21 in. x 8 ft., 10 ft. and 14 ft. " " "
24 in. x 10 ft., 12 ft. and 14 ft. " " "
15 in. and 20 in. Crank Shapers.
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16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest
16½ in. x 6 ft. Engine Lathe, screw front, compound rest
17 in x 7 ft. Engine Lathe, screw back, plain rest.
17 in x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
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17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
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18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
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21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
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22 in. x 10 ft. Engine Lathe, screw back, double T rest, cross feed.
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No. 1 Upright Drill.
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Radial Drill, 6 ft. arm, plain top table.
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25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
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36 in. x 36 in. x 14 ft. Planer.
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60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
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Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¾ x 10 in., with Double Drums, Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

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1 Automatic Wood Lathe. Clement. Good as new.
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1 Shear and Punch combined. Light machine.
1 Nut and Washer Punch. Cheap.
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1 Large Sorghum Roller. Weight 16,000 lbs. Very low.
1 44 in. Boring Lathe. Good as new.
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1 Power Chain Hoist.
1 Grindstone with iron frame. Cheap.
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50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spinning Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 10 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
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Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

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J. A. MacKinnon Machinery Co.,
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BARGAINS FOR CASH.
Write for Prices.

1 32 in. Lathe, 5 ft. bed.
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1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12¼ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 24 in. Lathe 15½ ft. bed.
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1 4 H.-P. Baxter Engine and Boiler.
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2 34 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
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1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

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One Seller's Driving Wheel Lathe, 78 in. swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
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Four 100 H.-P. Horizontal Tubular Boilers.
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Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.
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both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

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Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

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New and Second-Hand
METAL WORKING
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Send for list of same for immediate delivery.

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VERTICAL BLOWING ENGINE FOR SALE.

30 in. diam. steam cylinder, 62 in. air cylinder, stroke 5 feet, in good condition. Price reasonable.

ROCK DRILLS 5 in. to 13/4 in.; **LIGHT LOCOMOTIVE** 36 in. gauge; **STEAM SHOVEL; AIR COMPRESSORS.**

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900 Tons New Cast Iron
WATER PIPE

10, 14, 16, 16½ and 20 inch,

At a Big Sacrifice.

Speak Quick If You Want It.

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1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

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Patterns, Machinery and Tools. Also Wagon Box Patterns.

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BAKER BLOWERS,
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7 H.-P. Otto Gas Engine equal to new.
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One 10 x 22	Horizontal engine.	A No. 1 condition.
One 4 x 4	"	"	"
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One 50 Light dynamo. New.
Lot of radiators, pulleys, etc.

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800 H.-P. Horizontal Engine.
Cylinder 30 in. diam. x 7 ft. stroke.
Fly-wheel 22 ft. diam. rim 10 in. x 12 in.
Suitable for Blast Furnace or Rolling Mill.
Also, Double Acting Plunger Pump For Sale Cheap.

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One No. 3 Garvin Universal Milling Machine. Complete.
The above are new, not having been used, and will be sold low to close out an estate.

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State what you want and see if we can supply you either on new or second-hand.

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Can furnish stacks, grates and all fittings to suit purchasers.

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5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

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In good condition; excellent location. Caseville, Huron Co., Michigan. Address

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One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.

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BOILER, Locomotive style, 60 in. shell, fire box 78 in. long, 55 in. wide, 81 flues, 3½ in. diameter, 13 ft. long; total length about 23 ft., in good order, removed to put in larger.

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One pair Howe Truck Scales, four beams, 34 feet long, weight 122,000 pounds. As good as new.

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Electric Light, High Speed and Slide Valve Engines in first-class condition for immediate delivery at very low prices.

1 30 x 72 Corliss Condensing Engine.
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Slide Valve Engines, 14 x 24, 10 x 16, 10 x 12 and 8 x 8.

Several Steel Tubular Boilers 50 to 125 H.-P. also, several sizes Pumps, Rock-Drills, Fan Blowers, &c., &c. Send for Circular.

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Locomotive Boiler 6 ft. x 21 ft (2).
Locomotive Boiler, 3 ft. x 10½ ft.
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"Giant" Railroad Excavator and Wrecker.

Built by Vulcan Iron Works Co., of Toledo, O. Mounted on Standard Gauge Car. Capacity 2000 yards. Double Hoisting Engines 10 in. x 12 in., Single swing Engines 10 in. x 12 in., Boiler 4½ ft. x 9 ft., Water Tank 1,000 gallons. Will sell or rent to responsible parties.

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Send for Lists.

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Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
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1 100 H.-P. Babcock & Wilcox Boiler, very good.
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SECOND-HAND FEED WATER HEATERS.

We want two feed water heaters. State maker's name, size and condition and price.

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We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler, eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.
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GAS ENGINES, 5 and 10 H.-P., new, guaranteed.
BOLT HEADERS, new improved Lewis, will make all kinds, without changing tools.
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BOILER, new 50 H. P., near Philadelphia
LATHE, 60 in., New Haven make, owned by Beckett Foundry & Machine Co., Arlington, N. J.
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DYNAMOS, 60 new, 40 to 500 light, to close out.
NUT PRESS, ⅜ in., 1⅛ in., nuts.
GAS ENGINE, 10 H.-P., Otto.
HAMMER, Dudgeon, 10 x 30, complete, 2 rams.
PLANER, new, never unboxed, arrived too late for shipment.

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SPECIAL INDUCEMENTS
—IN—
2D-HAND MACHINERY.

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14 in. x 6 ft. Bogert, H. S., Elevating Rest, Chuck fitted. A1 condition.
15 in. x 5 ft. Blundell, Elevating Rest, 2 Chucks, fitted. Good order.
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22 in. x 22 in. x 5 ft. Pease, with 12 in. Chuck. Good as new.
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2 20 in. Davis, Wheel Feed Quick Return. Good order.
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2 No. 1 Brown & Sharpe plain Millers, complete. A1 condition.
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1 15 in. x 5 ft. Am. Tool & Machine Co's. Fox Lathe, square Arbor, compound Slide Rest, complete. Good as new.

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Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
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1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

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Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

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A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c; ready to start up at once; will be sold at about half price. Address

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About 200 feet 5 and 6 inch good second-hand shafting. Address

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Wanted, Manufacturers.
FREE SITE, CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants,* in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties.* We are *not bound* to *any locality* and will give *unbiased information* on application.

Write for proposition blank.

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With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

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ACRES OF LAND,

With extensive improvements, in Cecil County, and near Baltimore City, Maryland, and in New Castle County, Delaware.

Under a decree of the Circuit Court for Cecil County, Maryland, the undersigned, Receiver of The George P. Whitaker Company, will offer at public sale at the Court House in Elkton, Maryland, on Tuesday, May 24, 1892, at 11 A.M., all the

REAL ESTATE

of The George P. Whitaker Company in Cecil County, and near Baltimore City, Maryland, with improvements thereon, and about 8500 acres of land in Cecil County, embracing two fine farms of 400 acres, the balance well set in good chestnut and oak timber.

The improvements are one new modern Charcoal Blast Furnace, 10 x 60 feet, with all the necessary attachments and appurtenances; also one Hillside Charcoal Blast Furnace of old style.

Also a new and complete Charcoal Bloomery of twelve fires, with all the necessary appliances and appurtenances, in first-class condition, and now in operation.

The property is on lines of both the Baltimore & Ohio and the Philadelphia, Wilmington & Baltimore Railroads, with connection by switch to the latter road, and of easy access to the former. It has a first-class and complete plant known as Principio Furnace, long the seat of iron productions and widely known for the superior quality of its production.

Also 210 acres of land lying near the city limits of Baltimore, on line of old Annapolis road, underlaid with the celebrated salt more Hone ore, widely known for its superior quality of Charcoal car wheels.

There are no liens or incumbrances on the property. Terms easy. The attention of capitalists is invited to this sale. For further particulars apply to John S. Wirt, Receiver of the George P. Whitaker Company, Elkton, Maryland.

At the same time and place and upon the same terms will be sold 232½ acres of Iron Ore property, known as "Iron Hill," situated in New Castle County, Delaware, and near the village of Newark, Delaware, and convenient to the railroad station of that name on the Philadelphia, Wilmington & Baltimore Railroad. This property has for many years been worked as an iron ore mine, and is underlaid with an almost inexhaustible supply of good Hematite iron ore.

JOHN S. WIRT,
Trustee.

FOR SALE.

Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.

The Lodge and Davis Machine Tool Co.,
Cincinnati, Ohio.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?
DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?
WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST. PAUL, DULUTH, &c., with lowest freight rates to and from all points.
ADDITIONAL CAPITAL ALSO PROCURED

WAITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY.

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.
OR CHAMBER OF COMMERCE BLDG, CHICAGO
THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,
Suburban Traffic Agt., 317 BROADWAY, N. Y.

FACTORY ROOMS WITH POWER.

Three large halls each 50 x 225. Two halls 7000 square feet each. Steam power and heat. City water, gas, cheap freighting, easy traction, steam freight elevator.

SHETHAR FACTORY, Elm Street, Yonkers, N. Y. Apply on premises, or to

T. ASTLEY ATKINS,
140 Nassau St., N. Y. City.

FACTORY
FOR - SALE - CHEAP.

In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft. x 100 ft., with 30 H.-P. Engine and Boiler and 90 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

TOWNSEND WANDELL,
51 Chambers St., New York City.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

FOR SALE.

RARE OPPORTUNITY FOR THE RIGHT MAN.

Owing to the death of Edward Heath, Treasurer of the Malden Hardware Co., Malden, Mass., a city of 25,000 inhabitants, situated 4 miles from Boston, the stock, fixtures, tools and teams of the company are offered for sale. Stock will invoice about $10,000. Must be sold on or before June 1, 1892, to close estate. Apply to

CHARLES HEATH, President,
on the premises.

FOR SALE.

The stock and fixtures amounting to about $5000 of a first-class hardware store, nicely located in a manufacturing town of 8,000 population. Best of private reasons for selling. We heartily recommend this stand to anyone desirous of starting in the retail hardware business. The town is within 25 miles of Philadelphia and growing in importance.

BIDDLE HARDWARE Co.,
507 Commerce St., Philadelphia.

BICYCLES.

A manufacturing company with one of the best equipped shops in New England is prepared to accept contract for the manufacture of 1000 or more Safety Bicycles for the season of 1893. Have had experience in this line and are prepared to make satisfactory arrangement with right parties desirous of putting a Bicycle on the market. Addr ss "BICYCLE 1893," office of *The Iron Age*, 96-102 Reade St., New York.

WANTED,
Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired. "A. B.," office of *The Iron Age*, 146 Franklin St., Boston, Mass.

WANTED.

Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

GAYNOR & MITCHELL MFG. CO.,
Bridgeport, Conn

HARDWARE STOCK FOR SALE CHEAP.

The stock of goods in the old hardware stand at Waverly, N. Y., is offered for sale. The stock is reduced to low amount and is clean. The stand has had a large trade for upwards of 40 years and is well and favorably known for miles around. Building is very convenient and has the modern improvements, including large power elevator. This opening presents an opportunity to start up with a fresh stock, or to move an old stock from a crowded locality to this desirable point. Three railroad trunk lines pass through Waverly. Address

H. G. MERRIAM,
Waverly, Tioga Co., New York.

WANTED.

To communicate with the owners of a modern Coke Blast Furnace, who are open to a proposition to move it to the best location in the country,

"COKE BLAST FURNACE,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

By a firm having connection with ironmongers, builders, architects, hotels and workshops, &c., an agency for England, Scotland and Ireland for a good and salable article or articles; one which has been sold in the English market preferred. Apply

"Acme" Door Check and General Machine Company,
48 Lees Road, Oldham, near Manchester, England.

For Sale.

Set of Tinner's tools, lot of Hardware Boxes, Wrought Iron Shears made by the Cleveland Hardware Company and a National Cash Register. For further particulars, address

CRAWFORD BROTHERS,
Sterling, Ill.

FOR SALE.

The Entire Plant of the ALEX. K. RARIG CO.,
Engineers, contractors, founders, machinists and boilermakers.

BUENA VISTA, VA., JUNE 16, 1892.

AT PUBLIC AUCTION.

IF INTERESTED WRITE FOR PARTICULARS.

J. E. MULLEN, Trustee.

FOR SALE.

Hardware, ship chandlery and Mechanics' tool store, established twenty years, in a good factory district. Reason for selling, wish to retire. For particulars, call No. 61 Greenpoint Avenue, Brooklyn, N. Y., JAMES HINDLEY. No agents.

World's Fair Exhibitors
ATTENTION.

Do you desire the services of a reliable company to receive, install and superintend your exhibit during the **World's Columbian Exposition?** We can save you money. Unexceptional references. Write for pamphlet and particulars.

CHICAGO COMMERCIAL COMPANY
501, 502, 503 Home Insurance Bldg., Chicago.

WANTED,
Something to Manufacture.

A New York manufacturer of Light Hardware, having greater facilities than necessary for their present line, desires to add some specialty or patented article to be finished complete from raw material if necessary. Address "H. H.," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

IF FROM ANY CAUSE

You have goods to offer at specially low figures for SPOT CASH, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of SPECIAL LOTS,
75 Chambers St., New York.

Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
Send for Catalogue,

143 Chambers St., New York.

WANTED, CHICAGO AGENCY

For a good line of goods, by an active, responsible man who can invest $1000 if necessary. Best of references. Address "AGENCY," office of *The Iron Age*, 59 Dearborn St., Chicago.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
19 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

Business Chance.

Good complete Retail Hardware Stock for sale in city of New Haven, Conn., one of the best localities in the State for the business. Value of stock $15,000 to $20,000. Inquire "CONNECTICUT," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

SITE WANTED. Any town or city desiring a manufacturing plant which will yield much trade to the dealers, both direct and through its employees, will do well to address "CLINTON," office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

A MANAGER FOR LAKE SUPERIOR CHARCOAL FURNACE.

One competent to take entire charge of plant. Address, with references,

A. Howard Hinkle,
Cincinnati, Ohio.

W. H. Hinkle,
Minneapolis, Minn.

FOR SALE.—Hollidaysburg Foundry and Machine Shop. The subscriber will offer at Public Auction on the premises at Hollidaysburg, Blair County, Penna., Thursday, June 2d, 1892,

At 2 o'clock P. M., **THE HOLLIDAYSBURG FOUNDRY AND MACHINE SHOP,** consisting of a three story brick Machine Shop, about 50 x 120 feet, and Brick Foundry with slate roof, about 60 x 130 feet. Machine Shop has a number of first-class tools, others in fair condition. Portion of building devoted to office, store room, blacksmith shop and fireproof pattern store room, containing a large number of valuable patterns of existing mechanical appliances now in daily use in surrounding manufacturing industries. The foundry is fully equipped with crane cupola and furnace, core oven, ladles, flasks and weights. The Pennsylvania Railroad passes in front of the property, while large manufacturing industries in the vicinity will afford a good local trade. The plant is ready for immediate operations. Terms, $500 cash on day of sale, balance in equal payments in two and three years, with interest secured by mortgage on property. MRS. A. M. BAYLEY.

FOR SALE.

The Baxter Stove Works of Birmingham, Ala. Plant in excellent condition; long established business; annual sales $100,000; terms easy; rare opportunity. For particulars address

AMERICAN NATIONAL BANK,
Birmingham, Ala.

FOR SALE.

A thoroughly well assorted stock of Shelf Hardware, House Furnishings, Stoves, &c., located in a growing and thriving Illinois town of 25,000 inhabitants; stock $8,000 to $10,000. The town is noted for its manufactures and is surrounded by the finest agricultural lands in the State. The business well established and thriving. Address "LIGHT," office of *The Iron Age*, 96-102 Reade St., N. Y.

HARDWARE BUSINESS
— FOR SALE. —

A clean well selected stock of Shelf Hardware Stoves, &c., with Tinshop for about $5000 in a live town of Colorado, nearest base of supplies to the new gold fields of Cripple Creek. Good reasons given for selling, &c. Apply quick to

F. C. GREATHEAD,
426 Colorado Avenue, Colorado City, Col.

STEEL RAILS.

We offer 100 tons second-hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).

H. V. L. MEIGS & CO.,
136-138 So. 4th St., Philadelphia.

NEW PATENT.

The attention of iron manufacturers, fence makers and others is invited to **HALL'S EARTH AND ANCHORAGE** or fence and awning posts, surveyor's stakes, poles, &c., recently patented. Adapted to any style of iron post or pole. Will revolutionize fence building. Correspondence solicited with a view to securing their manufacture or sale of patent. Address

H. O. HALL, Inventor,
No. 30 Ninth St., S. E., Washington, D. C.

Wheel, Axle and Iron Manufacturers and Capitalists.

Your attention is called to the following.

Two very valuable patents touching wheel and axle manufacturers and the iron trade are now offered for sale. One is an improvement in axle arms consisting of four concave depressions so arranged on the arm that they lessen friction and automatically lubricate it (the arm). The other is one of the most valuable patents ever issued. It gives to the owner a monopoly over a certain branch of business that has not been equaled in this century. This patent consists of a hub made from malleable iron, steel or other suitable metal, so made that in connection with an axle arm of suitable dimensions, &c., it does away with the projecting hubs of wheels that are now so common and annoying. It is no idle fancy to think and say that when this hub is introduced all others will disappear. Wheels made with this hub will be the nearest approach to perfection ever made in that line. To secure control of this patent is to secure a fortune. These patents will be disposed of singly or together, they will be sold outright or stock taken in a company organized for their manufacture. For further particulars address

PETER McMENAMIN,
273 Fifth St., Jersey City, N. J.

FOR SALE.

Hardware Store in a manufacturing town 12,000 inhabitants, in Central Ohio, for about $8000. Complete stock fine location, only one other exclusively hardware store. Other business interests reason for selling. Address

BODE HARDWARE CO.,
180 Main St., Cincinnati, O.

BUSINESS FOR SALE—A thoroughly established manufacturing business in the metal line. Goods well known and selling to the best wholesale trade. This business is now paying, but present owners have other business to which must be given all their time and capital. Thoroughly competent practical man will stay with it if desired. About $15,000 required. Good chance for some town desiring manufacturing plant, as it can be easily removed. "LAFAYETTE," office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish (no trade for real estate). For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

Patent For Sale.

Or place it on royalty. A patent, No. 441,859, patented Dec. 2 1890. My improvement consists in **Pruning Shear, and Fruit Pickers** to provide a shears which is not only adapted for general pruning, but is also adapted for picking fruit. The lineal blades will reach the horizontal stems and limbs, while the angular blades will reach the vertical stems and limbs. The shears are on a pole, and the operator can dispense with climbing up the trees and ladders, thereby will save much labor. For picking fruit, the shears are very light with large jaws, and are kept open, a hop or receiving the fruit and drop it down through a conveyor with several sharp bends in it to break the fall, and prevent it from bruising. Address

F. STANKE,
San Francisco, Cal.

WANTED.

A Westinghouse Engine, 60 or 75 H.-P.

W. C. EDGETT,
Southbridge, Mass.

FOR SALE.

BLOWER.

Baker Rotary Pressure Blower No. 5. Wilbraham make, first-class order.

STANDARD STEEL CASTING CO.,
Thurlow, Pa.

FIRE!!!

Burned May 16th. Post Office Station S, Brooklyn, N. Y. Please duplicate all correspondence addressed to Wilson Bohannan which does not receive an immediate reply.

WANTED.

Western Rolling Mill, Nail Works or other Manufacturers in Iron or Steel to lease exclusive territory, for the manufacture and sale of a specialty on which there is a large profit. Demand unlimited. For particulars, address

"FRANKLIN,"
office of *The Iron Age*, 220 So. 4th St., Phila.

FOR SALE.

One Atlas Plain Slide Valve Engine, 10 x 16, and one 42 x 12, **Boiler** to go with the Engine. Both in excellent condition. Fittings complete. At a bargain.

THE CONGDON BRAKE SHOE CO.,
1014 Monadnock Building, Chicago, Ill.

FOR SALE.

A lot of 6 inch Cast Iron Flange Pipe. Address

THOMPSON C. GILL & CO.,
212 S. Third St., Philadelphia, Pa.

Please Notice.

For sale at a sacrifice for immediate removal. Double deck tubular boilers, diffusion battery, Fairbank's track scale, nearly new; piping; old boilers 8 ft. x 20 ft., suitable for tanks.

MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

Fluor-Spar.

ILLINOIS FLUOR-SPAR & LEAD CO.

SUCCESSORS TO

MULLIN'S

FLUOR-SPAR AND LEAD MINING CO.,

57 Board of Trade Building, Chicago, Ill.

This Company owns, at Mineral City, on the Ohio River, the largest Mines of Fluor-Spar ever discovered.

We are working a large force of miners; our new mills and tram railway are running, and we are now prepared to furnish the purest Fluor-Spar in any quantities to Iron and Steel Manufacturers, to Smelters of Gold, Silver and Copper, and to Paint, Paper and Glass Makers.

Fluor-Spar is pronounced the most powerful of fluxes; it facilitates the reduction of the most refractory materials. For Alkalies, Clays and all Metallic Oxides it has a remarkable solvent power; it reduces the melting point and saves fuel; it diminishes the loss of metal, saves labor and keeps the cupola clean; reacts strongly upon scaffolds and cloggings.

One part of Fluor-Spar is more effective than ten parts of Limestone. Limestone is an enemy to iron; Fluor-Spar is a friend.

Directions for the proper use of Fluor-Spar given our patrons.

We ship Lump, Gravel, Crushed and Ground, in bulk or barrel.

EXPERTS IN MECHANICAL ENGINEERING.

Thirty years' experience, best of facilities. Experienced in the manufacture of typewriters, check punches, cash registers, telegraph instruments, electric motors, dynamos, rail saws, projectiles or any metal article from one ounce to 20 tons weight. Estimates furnished. Correspondence solicited.

BRADY MFG. CO.,
83 Washington St., Brooklyn, N. Y.

To Manufacturers Requiri g Railway and Water Communication

FOR SALE.

MANUFACTURING PLANT

Within 45 minutes from the City Hall.

Consisting of

Foundry, Machine, Blacksmith and Carpenter Shops.

All built of brick with slate roof, covering 45,000 square feet of ground with Corliss Engine of 250 horse-power, &c., &c., together with numerous Sheds, Stables, &c

About 12 acres of land, stone filled dock on River, etc.

For particulars, apply to

S. DE WALLTEARSS,

171 Broadway, - - NEW YORK.

SITUATIONS WANTED

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

A SITUATION as traveling salesman for agricultural implements, wagons and buggies, by a man with a good trade in the Southern States and Texas (this territory preferred). Satisfactory references furnished on application. Address "J. R.," Box 309, office of *The Iron Age*, 96-102 Reade St., New York.

AS SUPERINTENDENT or foreman by American married man with 15 years' practical experience in manufacturing brass novelty goods; well posted on stamping presses, automatic and rivet machines; competent to handle help and take entire charge of factory; can give satisfactory references as to ability, &c.; salary moderate. Address "BRASS," Box 519, office of *The Iron Age* 9 -102 Reade St., N. Y.

AS FOREMAN of a malleable or light gray iron foundry; understand making iron from furnace or cupola; also understand molding and annealing; good references. Address "DAVIS," office of *The Iron Age*, 96-102 Reade St., New York.

WE WISH TO GET a place for a good all-round hardwareman, wholesale or retail, whom we can recommend; we are changing our business and will not need him, although he is and has been for years our best man in a $40,000 stock doing $100,000 and over annually; to those who want a good man this is a rare chance; age 45; speaks German and English. Address "RELIABLE," Box 519, office of *The Iron Age*, 96-102 Reade St., New York.

BY FOUNDRY FOREMAN, experienced and practical in heavy and light machinery work, core work, &c.; can produce first class work and handle men to advantage; could buy some stock if suited; A1 references. Address "MODERN METHODS," Box 519, office of *The Iron Age*, 96-102 Reade St., New York.

ACCOUNTANT.—A first-class double entry bookkeeper with 12 years' experience in large manufacturing mercantile companies, desires position; familiar with export trade and foreign accounts and perfectly competent for general office work; compensation moderate; references very best. Address "A.," care of Hardware Board of Trade, 4 Warren St., N. Y.

TO REPRESENT in the State of Texas manufacturers of hardware, &c., by a man with 15 years' experience and favorably known to the trade throughout the State; office and sample room at San Antonio, Texas. Address "TEXAS HARDWARE," office of *The Iron Age*, 96-102 Reade Street, N. Y.

HARDWARE SALESMAN now actively engaged wants a few lines to sell on commission to the trade of Arkansas and Texas; manufacturers of builders' hardware, files, saws, tinware and cutlery are especially invited to answer; A1 references. Address "R. S. C.," Lock Box No 8, Helena Ark.

A MECHANICAL Engineer and mechanic of long experience in various lines desires correspondence with parties in need of these services of a man experienced in designing tools and special machinery and thoroughly acquainted with all the details of modern manufacturing methods; past experience has been in the line of machine tools, engines, locomotives and general machinery. Address "CLIFTON," office of *The Iron Age*, 96-102 Reade St., N. Y.

FOREMAN MOLDER desires to make a change; an experienced man on engine and all kinds of jobbing work, have had practical experience in green, dry sand and loam; strictly temperate, good references, thoroughly competent. Address "S.," Box 519, office of *The Iron Age*, 220 So. 4th St., Philadelphia Pa.

MECHANICAL ENGINEER with nine years' experience in machine shops, drawing offices and outside erecting work, principally in steam engineering factory building and gunwork, with some aptitude for management, wants position; speaks French; communications to R. BERGGREN, Camden, N. J., corner Haddon Avenue and Line Street.

HARDWARE.—A position as salesman or buyer by one who has had many years' experience as both; references first-class. Address "WIDE EXPERIENCE," office of *The Iron Age*, 96-102 Reade St., New York.

AN EXPERIENCED business man thoroughly familiar with the manufacture of metal goods, with a long experience in estimating costs of manufacture, purchasing supplies, organizing help and marketing goods, perfectly familiar with all office work, would like a responsible position with a first-class house. Address "O. F. C.," Box 526, office of *The Iron Age*, 96-102 Reade St., New York.

BY A THOROUGH practical rolling mill Manager for iron and steel products; can make high grades of either; can utilize old rails or scrap to advantage; is highly endorsed by late employers and A1 references for ability, sobriety and integrity. Address "V. IRON AND STEEL," P. O. Box 523, Pittsburgh, Pa.

TWO YOUNG Hardware men, through 17 years' experience well acquainted with German, English and domestic goods, wish to represent in Chicago manufacturers and importers of hardware and cutlery. We will sell your goods and do honest work in the World's Fair City, if you can deliver the goods and quote prices. Address "M. & H.," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

BY CHEMIST of extended experience, right up in steel working, blast furnace work and products, copper ores and products and assaying. A1 references. Address JOS. E. HAINES, 3008 Linden Square, Philadelphia, Pa.

BY THE ADVERTISER, as Bookkeeper and Correspondent with a manufacturing house or a large hardware dealer; a position where energy and faithful service would be appreciated. Has at present good position with a real estate firm but the business is not congenial and desires to return to the metal trade again. Has had nearly 16 years' experience as bookkeeper, correspondent, time keeper, shipper and looking after help. Familiar with the tin, brass and copper, sheet metal goods, brass goods and hardware branches. Is considered a good double entry bookkeeper and fair correspondent. Also has had about 4 years' experience selling goods throughout the United States, Canada and Great Britain. Will accept a position at very low salary first year providing that if thorough satisfaction is given, a permanent position at fair salary is promised. Can commence an engagement on the 10th of June, or any succeeding month. Locality is no object, will go anywhere in the United States. Advertiser is 28 years of age and is married; can furnish first-class references. Address W. A. LANGFORD, office of *The Iron Age*, 59 Dearborn Street, Chicago, Ill.

BY A MEMBER of the American Society of Mechanical Engineers, as Works Manager or Chief Engineer. 26 years' experience as machinist, draftsman, chief engineer and manager in boilers, engines, gearing, buildings, steel works and general engineering; has successfully designed and operated intricate special machinery; has a good knowledge of electrical power, especially as applied to steel works. Can estimate and contract for, build and start mills from the ground up. Salary moderate. Address "ENGINEER," office of *The Iron Age*, Room 509, Hamilton Building, Pittsburgh, Pa.

BY AN ANALYTICAL Chemist who has had ten years' experience in the manufacture of iron and steel, in all of its branches, both acid and basic. References and testimonials of the highest order will be furnished. Address "A CHEMIST," Box 512, office of *The Iron Age*, 96-102 Reade St., N. Y.

TIN PLATES.—To steel manufacturers and others; the advertiser, many years' manager of extensive tin-plate works in South Wales, about to settle in United States, will be glad to negotiate with intending manufacturers of tin-plates or to convert imported black plates into tin or terne plates. Communications to await a rival to "TIN PLATES," Box 512, office of *The Iron Age*, 96-102 Reade St., New York.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as superintendent of manufacturing establishment. Address "MULLACH" Box 33, office of *The Iron Age*, 96-102 Reade Street, New York.

BY A THOROUGHLY competent hardware man, a position as traveling salesman; have had 15 years' experience in shelf and heavy hardware; willing to work in any territory; A1 references as to ability, sobriety and energy. Address LOCK BOX 34, office of *The Iron Age*, 96-102 Reade St., New York.

A BRICKLAYER desires a situation to take charge of a Rolling Mill. Has had several years' experience in building and re-building regenerative furnaces and puddling furnaces, and also understands all general repairs around a rolling mill. Reference can be had from past employer. Address J. KEENAN, 5219 Stanton Avenue, 18th Ward, Pittsburgh, Pa.

SALESMAN wants line of spoons, pocket cutlery or any other good selling line for hardware trade on commission; parties desiring to be represented in the States of Michigan and Wisconsin; good reference. Address "HARDWARE," 193 Michigan Avenue, Detroit, Mich.

BY A MECHANICAL engineer, position as manager or assistant; would travel some; has had practical training and during last fifteen years occupied positions as designer, superintendent, traveler and manager. Address "P. R. I.," box 1044, Providence, R. I.

AN ACTIVE BUSINESS MAN, with considerable experience in the management of iron and coal companies, desires a position of trust and responsibility; is competent to fill an executive or other office. Address "W. W. W.," office of *The Iron Age*, 96-102 Reade St., N. Y.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

MECHANICAL DRAUGHTSMAN wanted to work on structural wrought iron work, an experienced draughtsman able to make quick and accurate shop drawings. Address CAMDEN IRON WORKS, Camden, N. J.

SALESMAN acquainted with the machine tool business, steam engines and boilers; will be required to travel some, but mostly local trade; must be a young man of good address and thoroughly practical. Address Box 519, office of *The Iron Age*, 96-102 Reade St., N. Y.

ENERGETIC YOUNG MAN well acquainted with machinery and iron trade of Chicago, with good address and fair education, to hustle about town for mining and hoisting machinery firm; also to act as assistant to manager. Address, giving age, experience and idea of salary, "HOISTING ENGINES," office of *The Iron Age*, 59 Dearborn St., Chicago.

SALESMEN to carry fine line of table cutlery to retail jewelery and hardware trade east of the Alleghanies. Address "CUTLERY," office of *The Iron Age*, 59 Dearborn St., Chicago.

SALESMEN visiting hardware and house-furnishing trade, to introduce rapid selling novelty in cooking utensils, on a commission; experience and references required. TRUMBULL SPECIALTY CO., Warren, Ohio.

ARE YOU LOOKING FOR BUSINESS? We want first-class men, familiar with steam engines and boilers, to represent us in various parts of the country for the sale of our important and popular mechanical appliances. Men of good address, who have some acquaintance with manufacturers and can furnish high-class references, will be able to make very advantageous arrangements with us. For full information, address.

THE ELECTRO AUTOMATIC APPLIANCE CO.
No. 9 Haynes St., Hartford, Conn.

A MAN to sell Steel Castings. Only those need apply who have a knowledge of this business. The advertisers would give preference to man who had previously been employed in selling Steel Castings, but would be willing to engage a man of good address, with such an acquaintance with the business as to enable him to make prices intelligently. "STEEL CASTINGS, 512," office of *The Iron Age*, 96-102 Reade St., New York.

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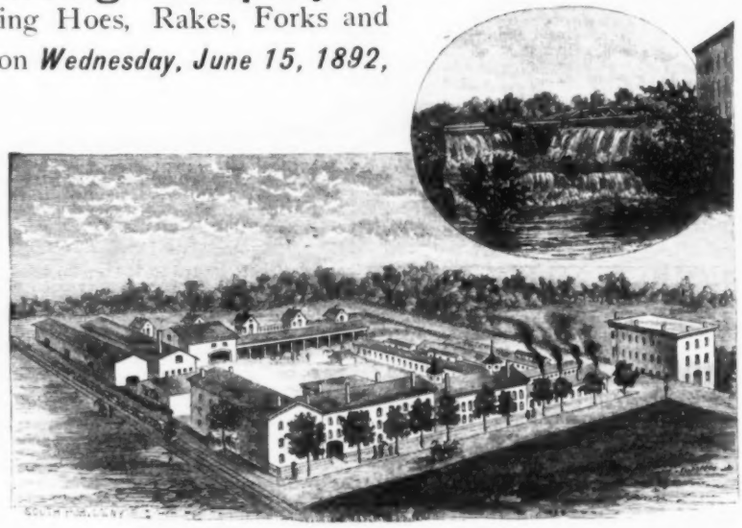
The Auburn Manufacturing Company's Plant located at Auburn, N. Y., fully equipped for manufacturing Hoes, Rakes, Forks and Scythes, will be sold at public auction ***Wednesday, June 15, 1892,*** at two o'clock, on the premises.



The buildings surround a hollow square of several acres in extent, as shown in accompanying cut. The main buildings are substantially constructed of stone and brick, thoroughly equipped with fire extinguishing apparatus, and cover the entire frontage of the property, 350 feet.

It has magnificent water privileges, 300 Horse Power, supplemented by a modern Steam Plant of 250 Horse Power added in 1888, but scarcely used since then, as Water Power has been ample. Steam plant is in perfect condition.

The Plant is located on the line of the New York Central Railroad, as shown in cut, and but a few rods distant from Lehigh Valley Railroad, thus affording unequaled shipping facilities.

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Machine Shop, Iron Foundry, Pat ern and Forging Shops.

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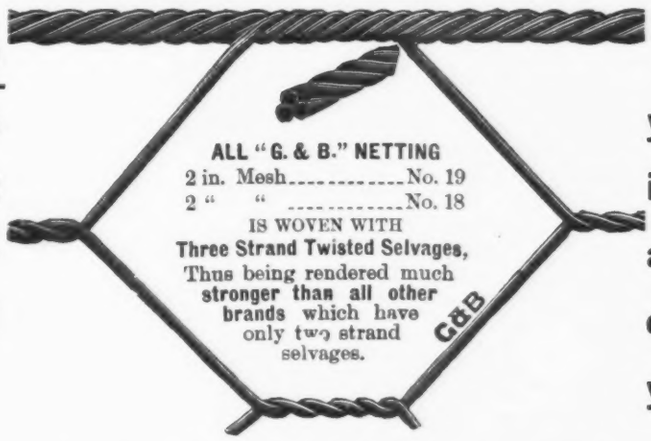

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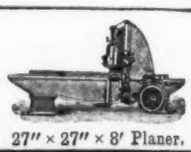

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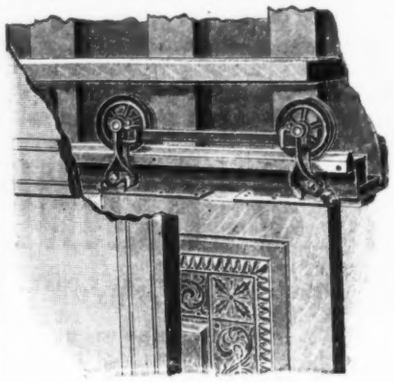

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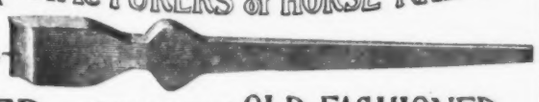

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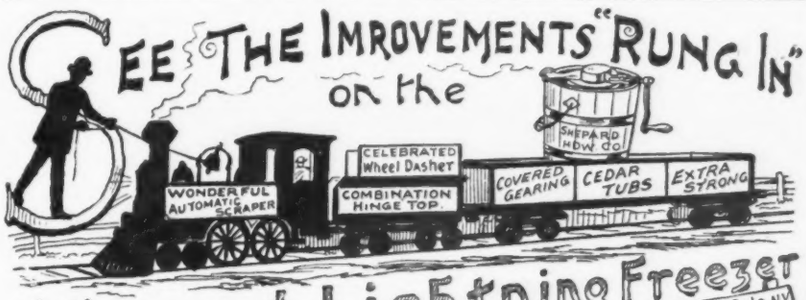

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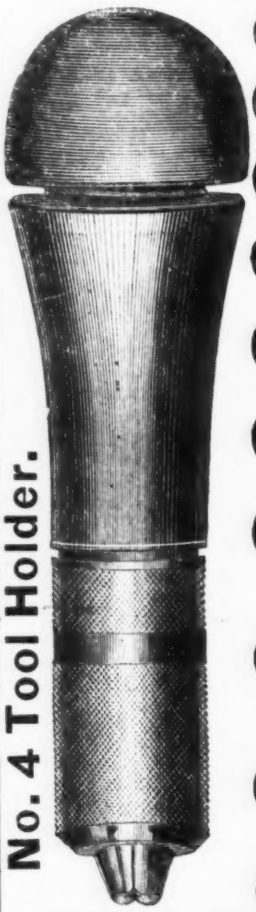
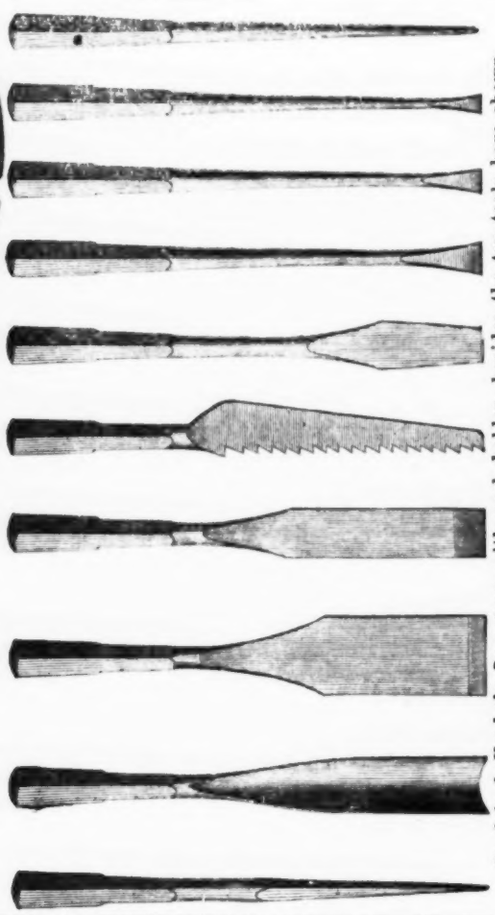


No. 4 Tool Holder.



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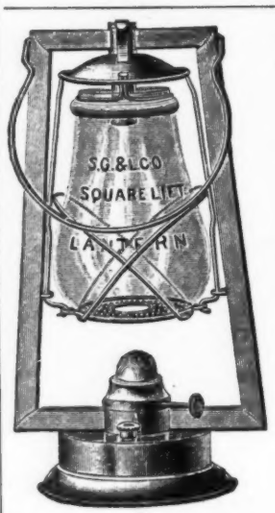

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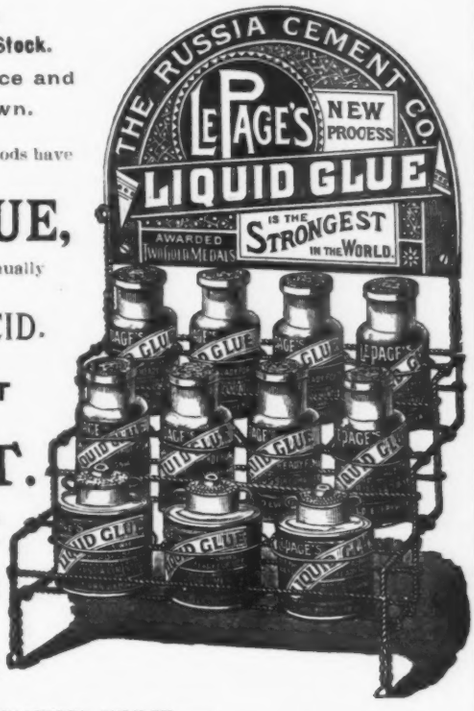

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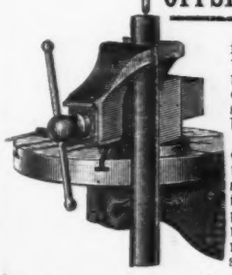

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Fig. 190.

Fig. 76.

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Fig. 200.

Fig. 381.

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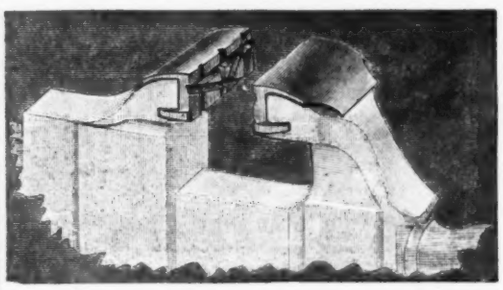

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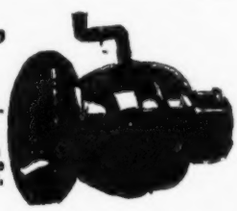

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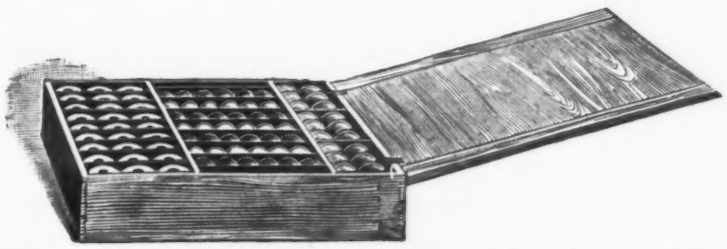

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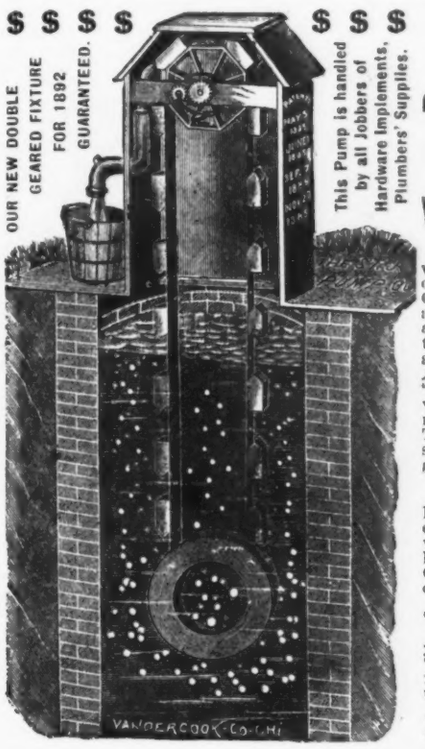

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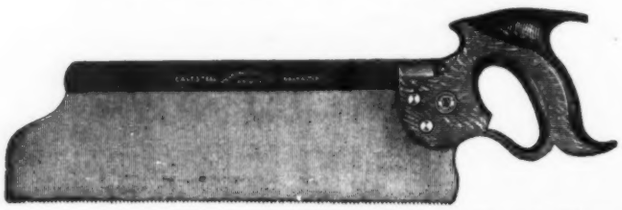

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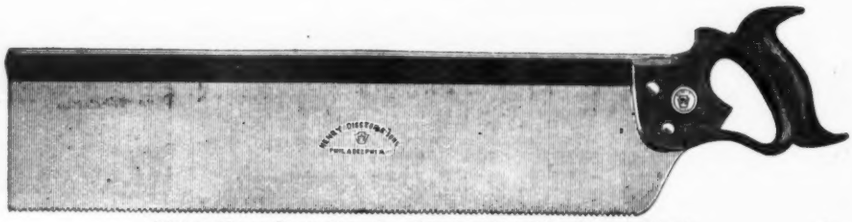

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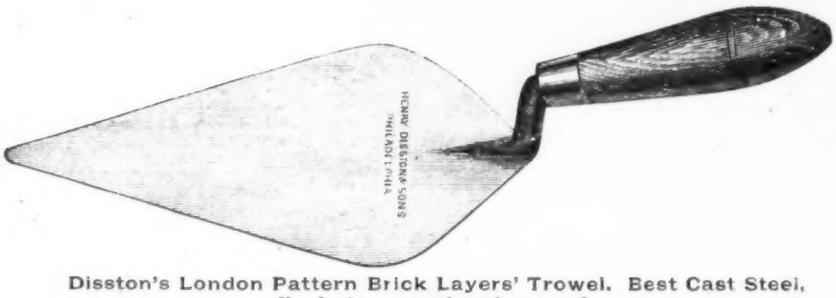

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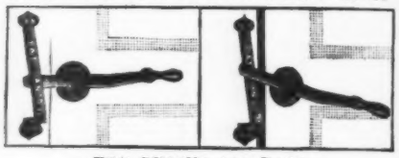

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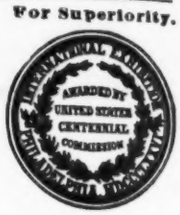

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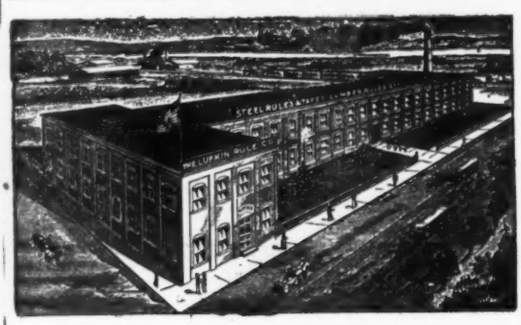

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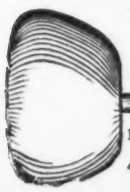

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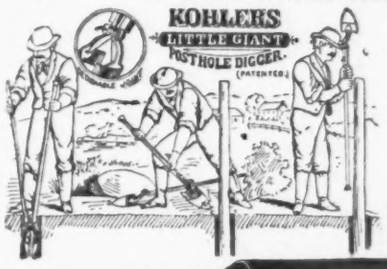

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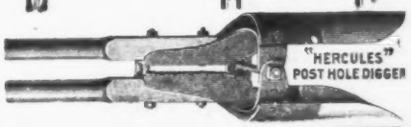

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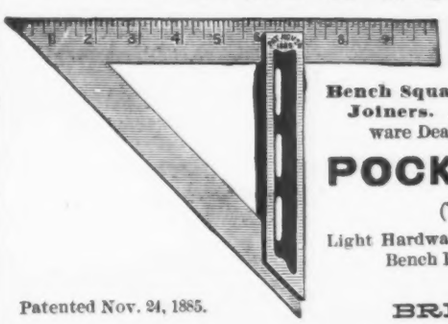

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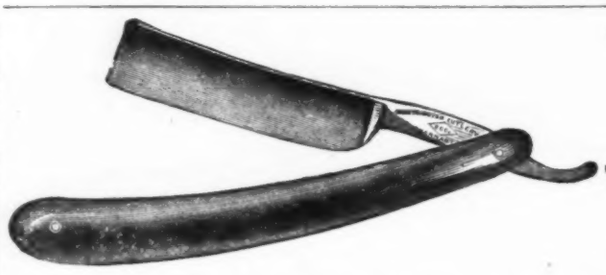

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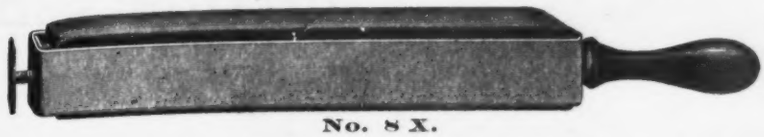

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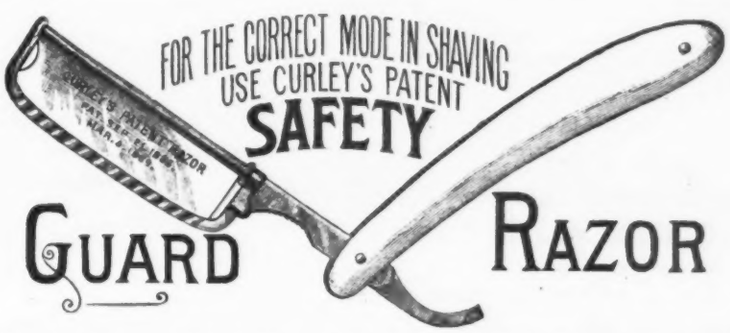

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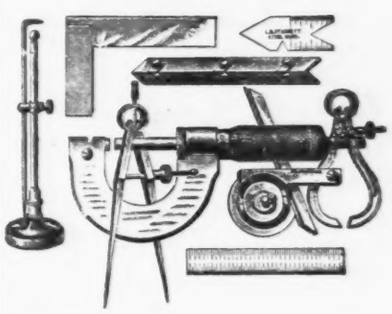

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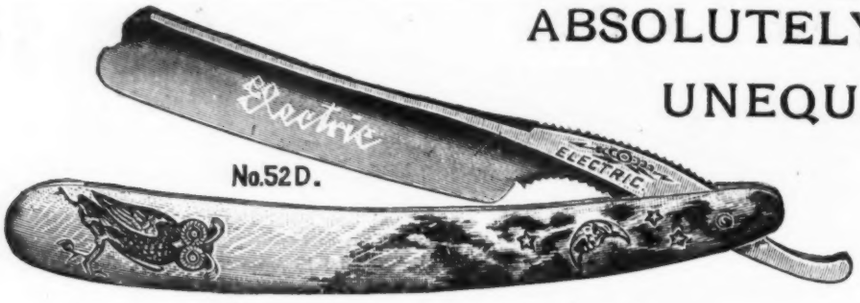

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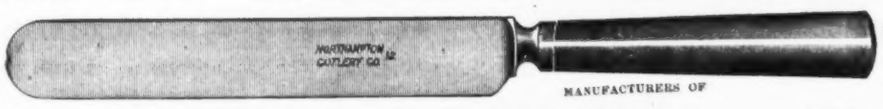

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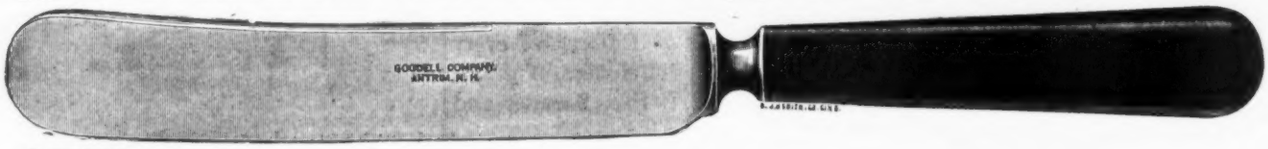

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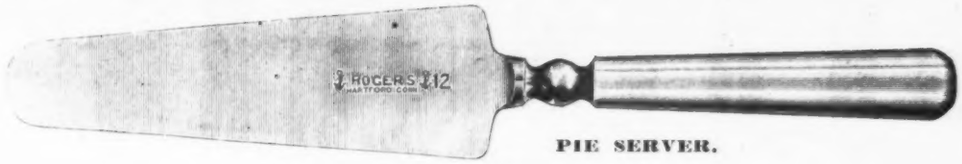

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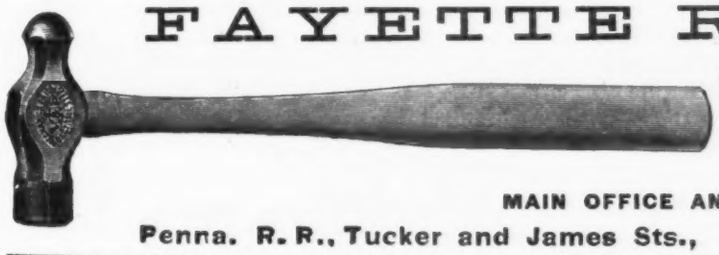

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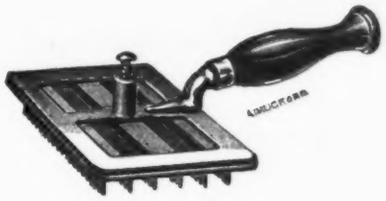

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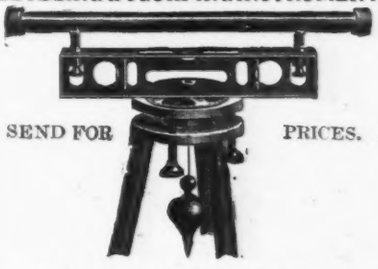

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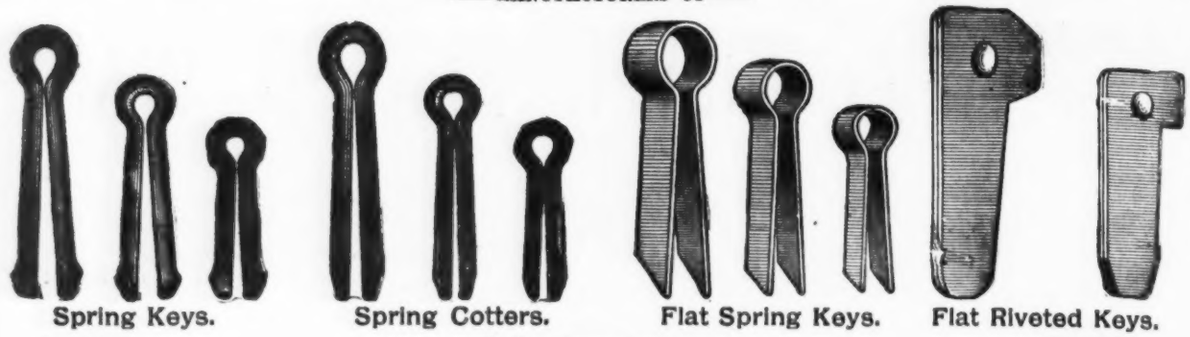

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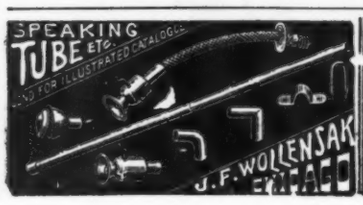

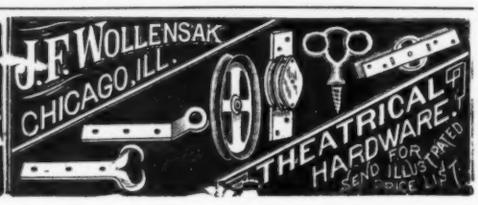

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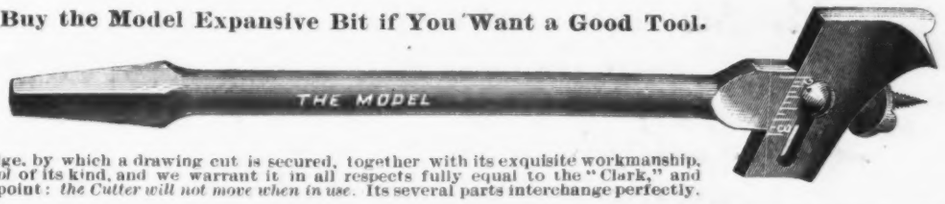

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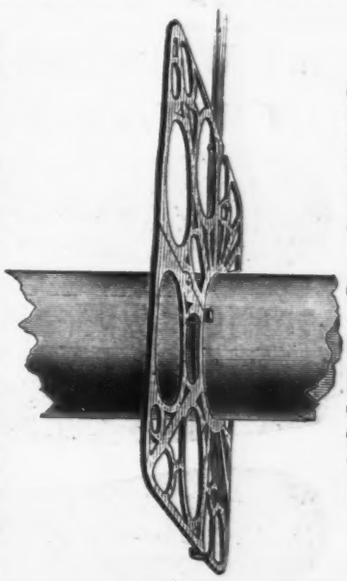

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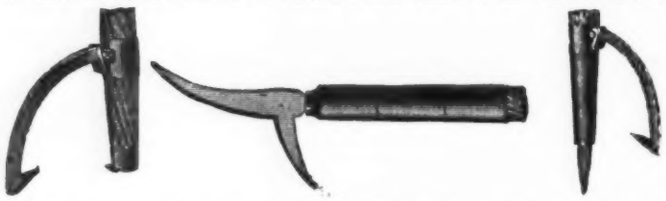

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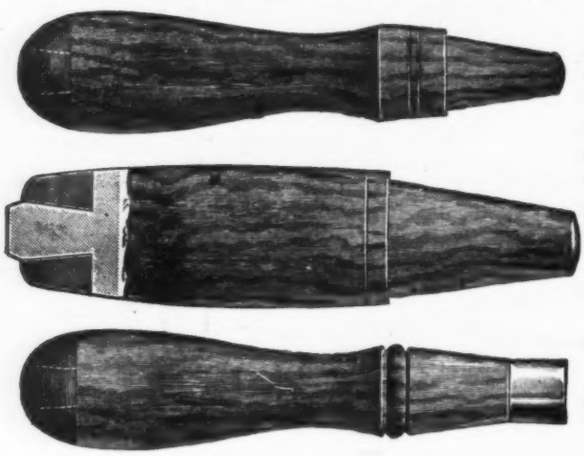

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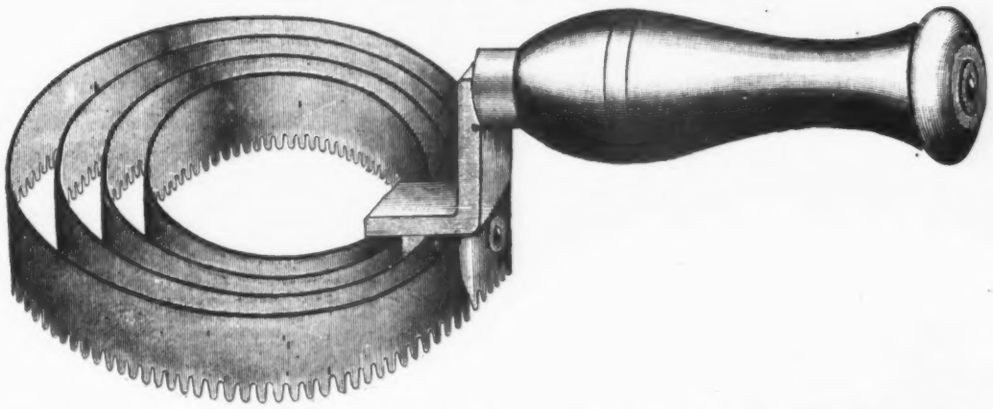

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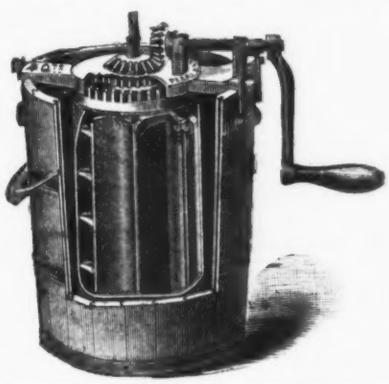

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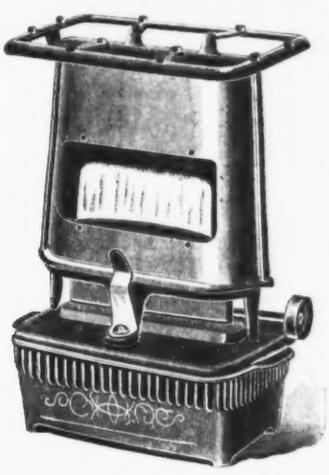

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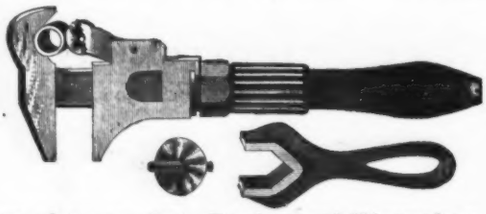
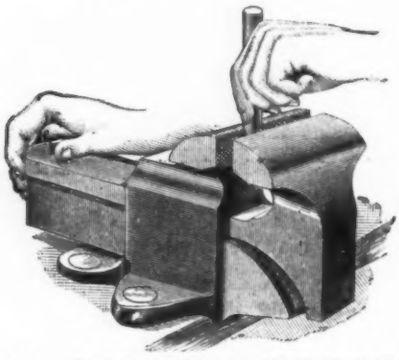


Donohue's Pat. Engineers' Wrenches, Short or Long Sleeve Nuts, and with Pipe Cutter.



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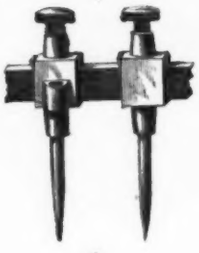

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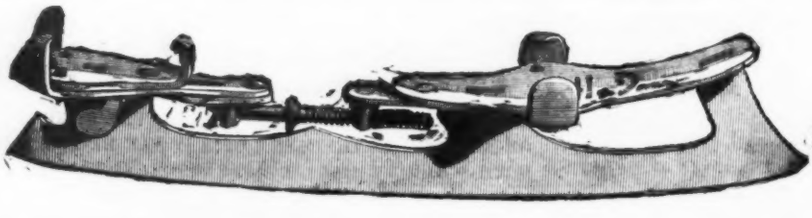

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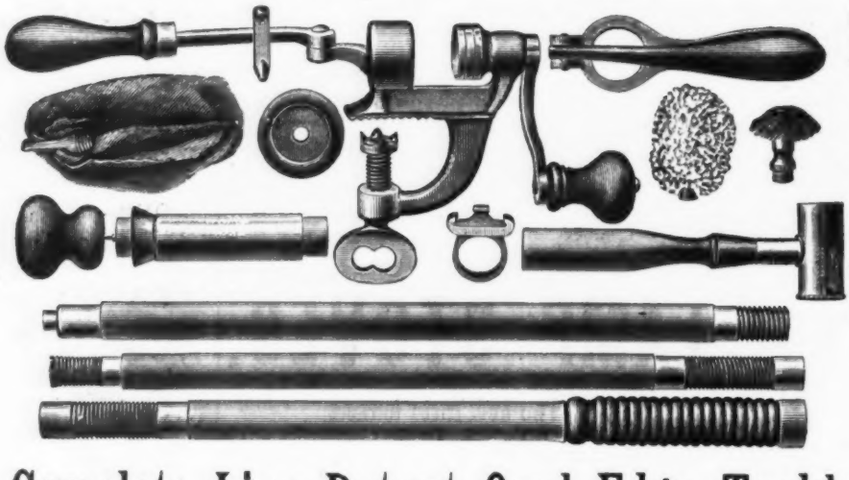

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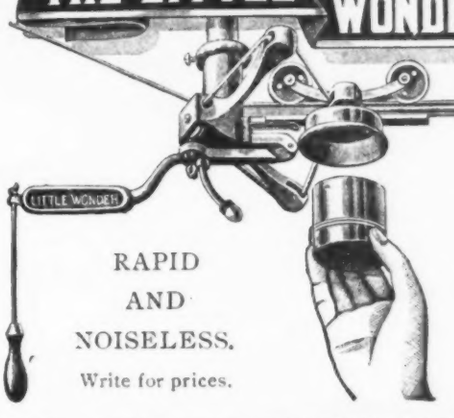

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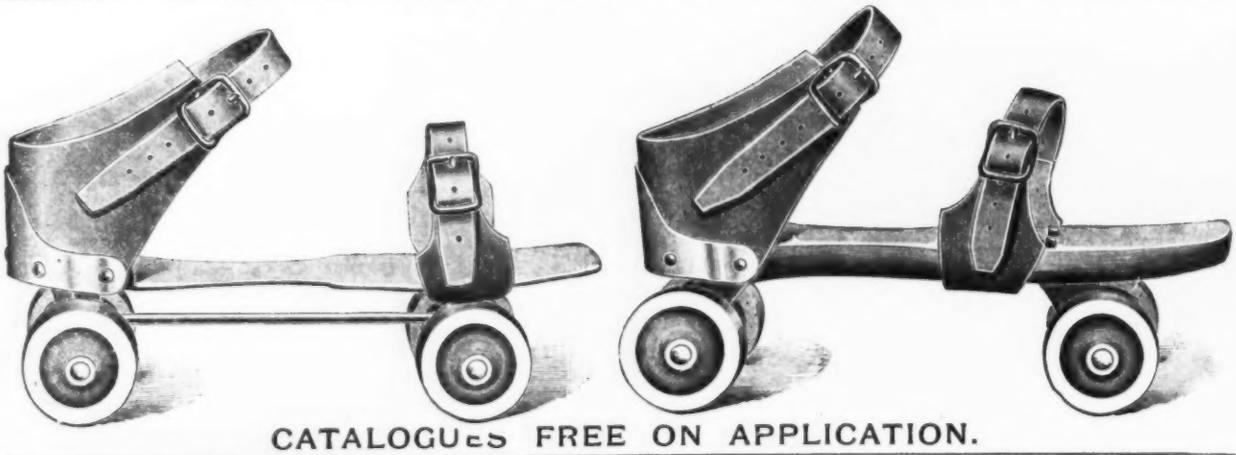

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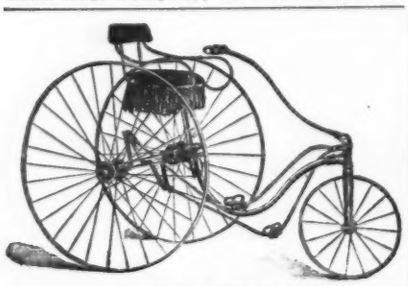

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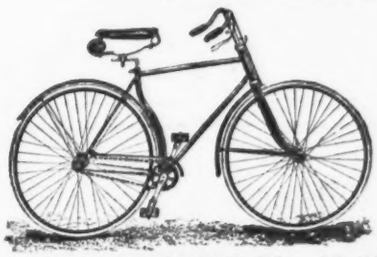

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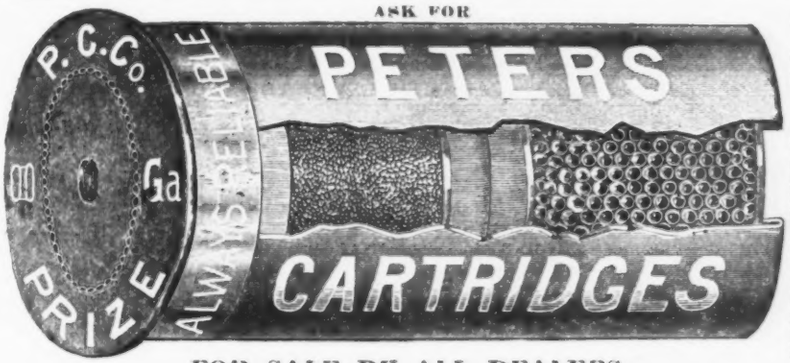

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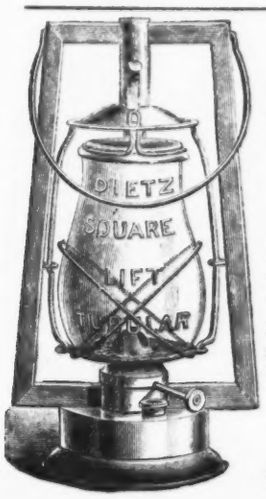

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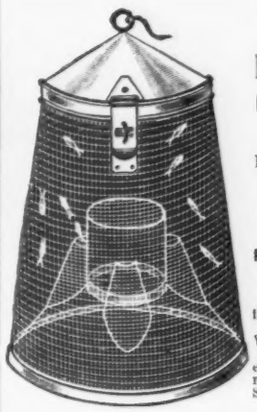

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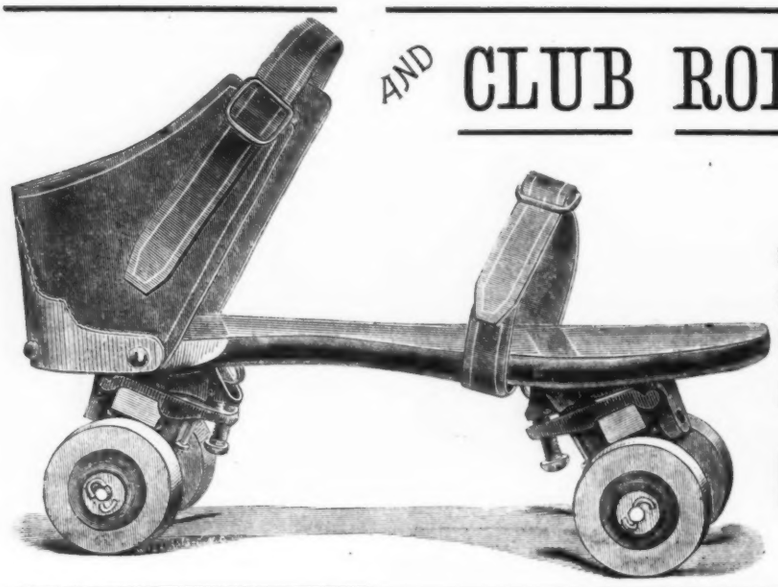

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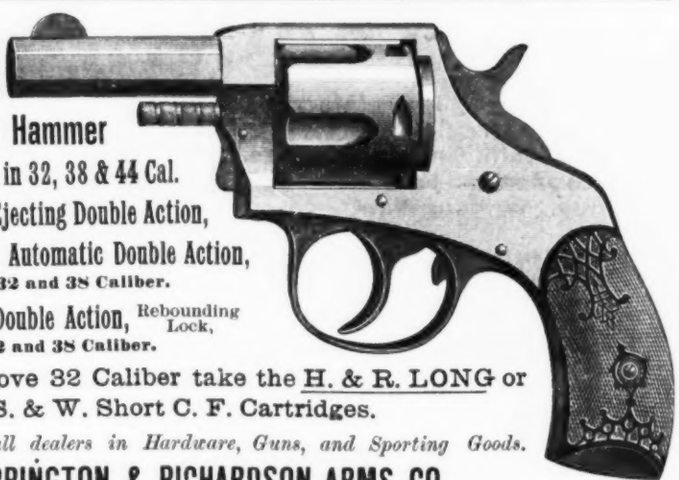

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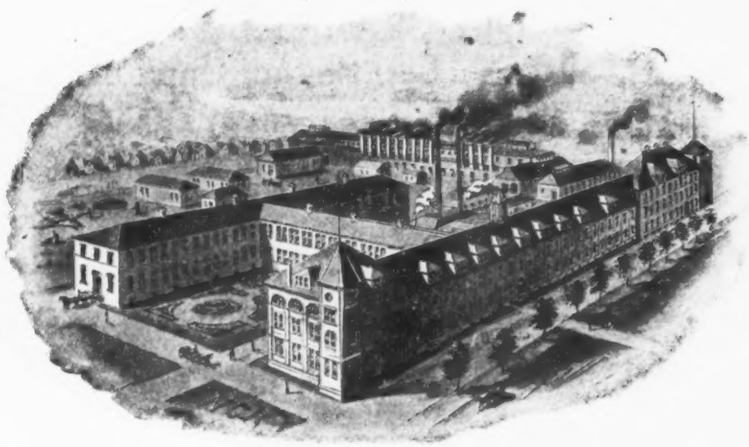

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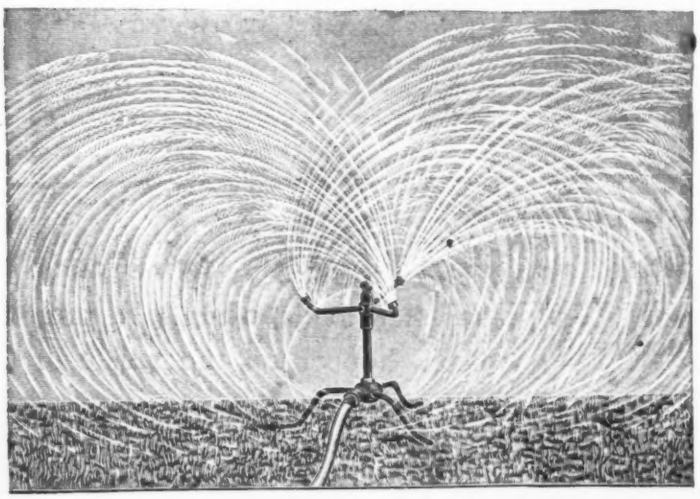

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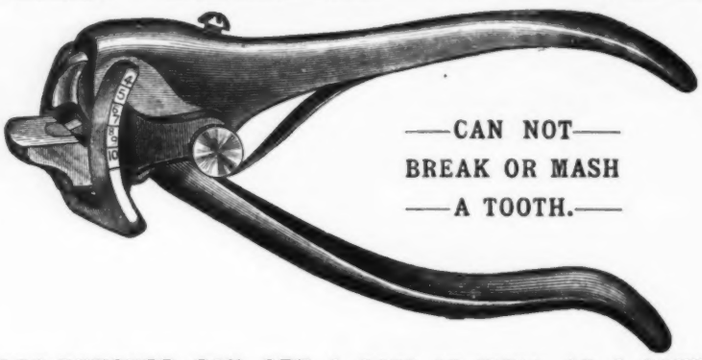

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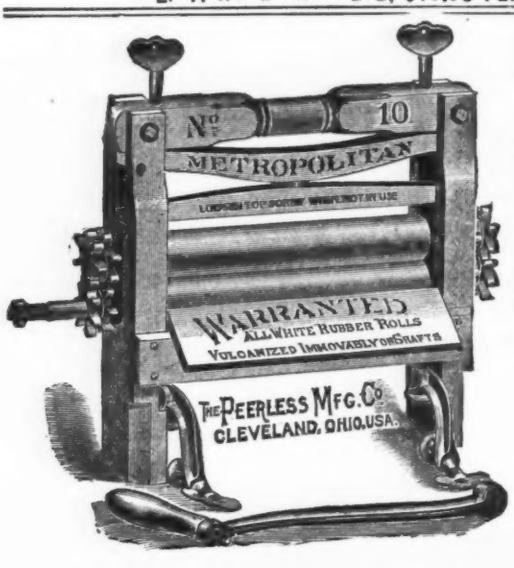

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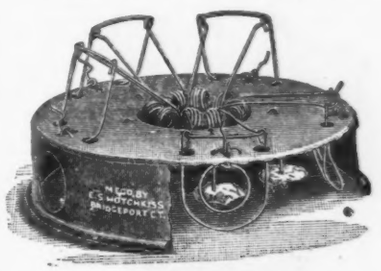

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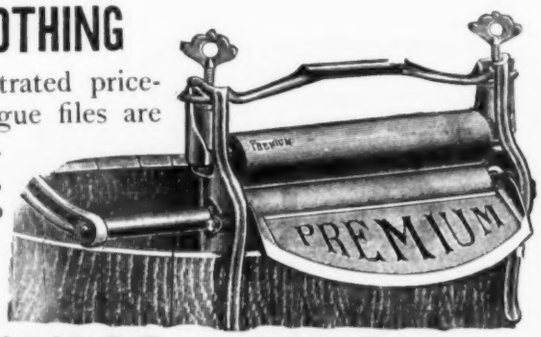

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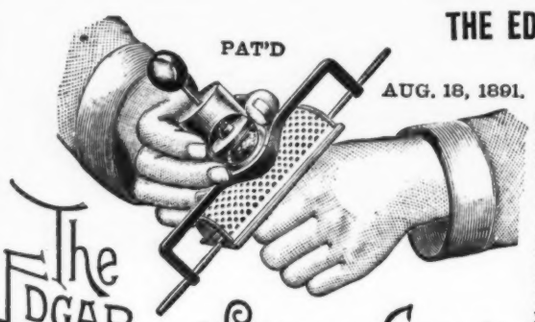

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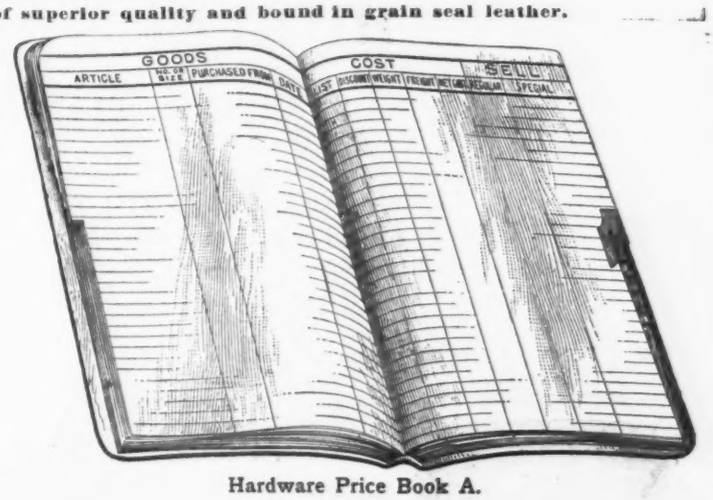

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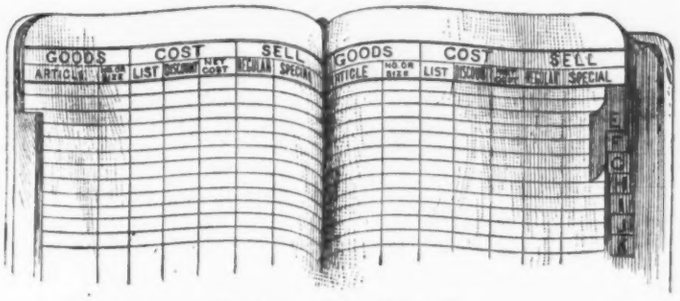

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In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

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B F 2, 400 pages with flap,	1.75

The headings in Book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in Book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price, and also for any remarks in regard to cost of the goods, desirability of pushing them, or other matters.

Size, 4½ x 7¾ in.; grain seal leather.

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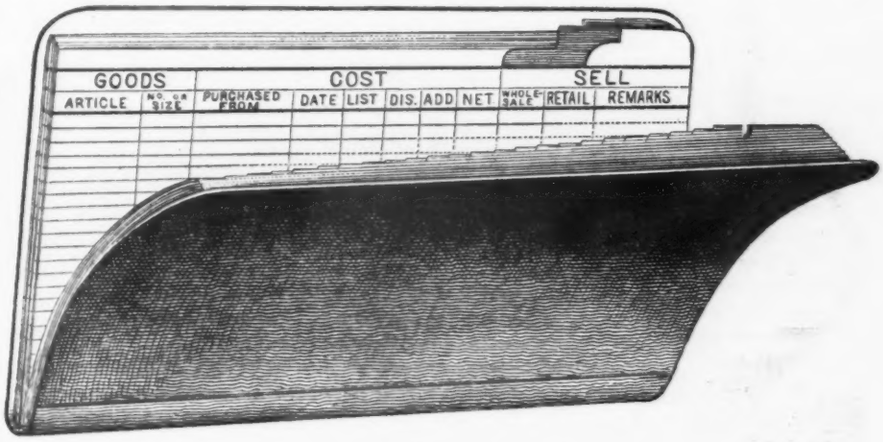
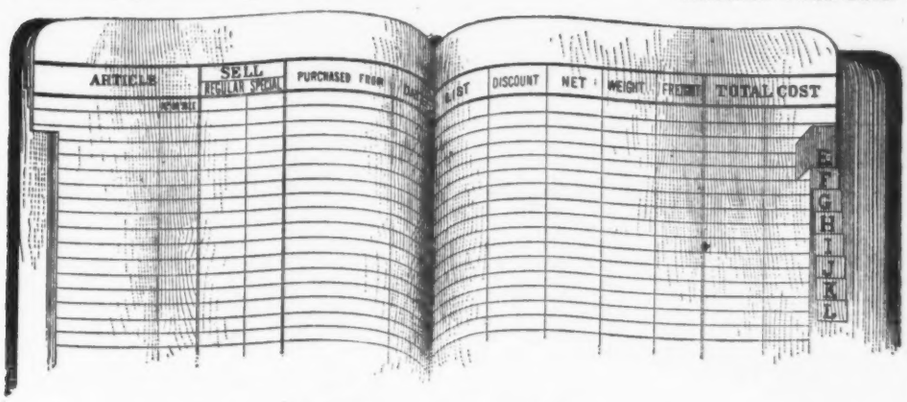


Hardware Price Book C.



Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, it number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction.

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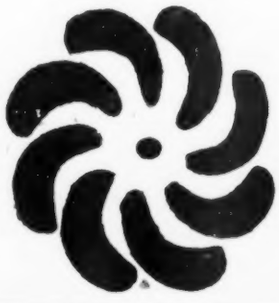

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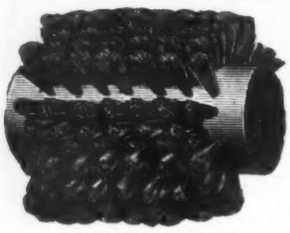

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Core Brushes, Casting and Molders' Brushes, Rattan and Corn mixed Shop Brooms, Brooms and Brushes of all kinds, manufactured by

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SPIRAL FLUE BRUSH.

COMING RIGHT ALONG.

OFFICE OF
K. FITCH & CO.,
Hardware, Stoves, Tinware, etc.,
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The Sun Stamping Co., Kalamazoo, Mich.

GENTLEMEN:—Yours of the 11th, rec'd and contents noted. In reply, say, that The Morgan Broilers we sold have given so far as we have learned, good satisfaction—*not any complaint.* We have been using one in our house for more than a year, and we could not be induced to part with it for any reasonable consideration. We find it **DOES** the work as represented, when instructions are followed. It **DOES** make meat juicy and tender, and for the purposes for which it is intended, we believe it to be the most economical piece of furniture we have in the house. * * *

Very Respectfully,
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The Morgan specialties in tin and sheet metal are manufactured solely by

THE SUN STAMPING CO., - - KALAMAZOO, MICH.,
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Gives the results so long wished by stove manufacturers—namely, a **Jet Black Gloss** without the silver lustre that has always prevailed. We own our Graphite (Plumbago mine in Sonora, Mexico. The celebrated Plombagina mine. Its product is a peculiarly black Graphite with high chemical purity. The graphite commonly used is lead color. It makes our polishes **the best.**

All the large stove manufacturers are now using it.¶

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Remember that a stove well blacked is half sold. Our claim is—the Cleanest, Blackest, and Glossiest in the world. Put up in Pails, Bottles, Boxes and Cakes. Correspondence invited.

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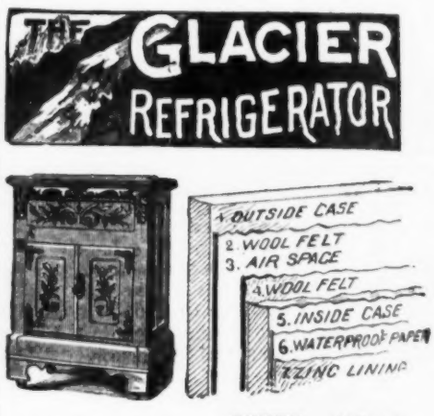

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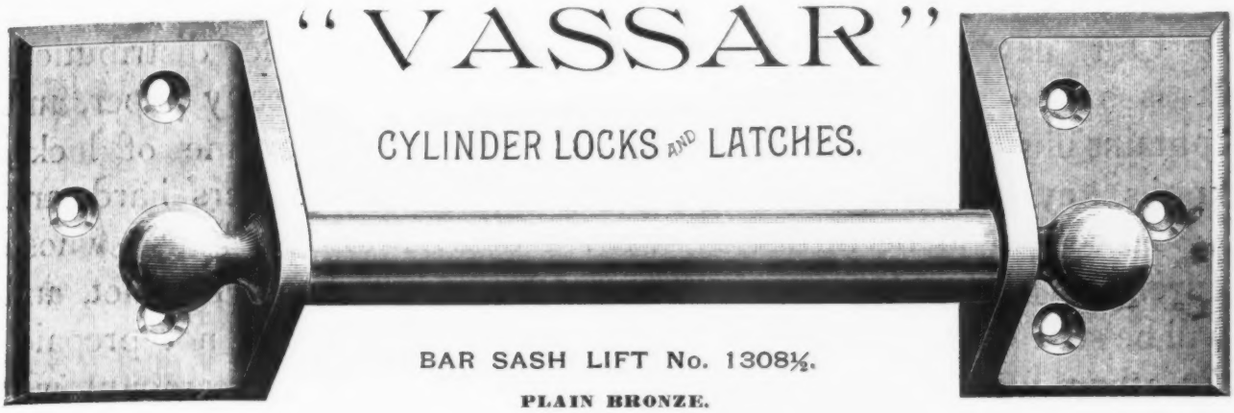

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POTS, KETTLES,
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"EXTRA FINISHED,"
Are Made by

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THE BICYCLE STEP LADDER.

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Ladders are not *Suspended*, but *Supported* from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit.
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OF ROANOKE, VA.

Roanoke Va., March 1, 1892.

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A copy will be furnished without charge to any house whose purchases from us during the year 1891 amounted to $100 net, and will be sent with the first goods ordered, or by express, not prepaid. To others we make a charge of $5.00 per copy, which amount will be deducted from account as soon as same amounts to $50.00 net. The book is too large to be sent by mail.

THE NORWICH LOCK MFG. CO.,
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THE NEWEST AND BEST

Your customers will want our new Coffee Mills, Rat Traps, &c., for they are the neatest and best being put upon the market.

THE CHILLICOTHE MFG. CO.,
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COFFEE MILLS, RAT TRAPS.

WHO EVER THOUGHT

Waddel's Improved No. 40 Coffee Mill.

Of putting a Grasping Handle to a Coffee Mill to hold while grinding; A Round Tin Cup for convenience in emptying; A Self-Setting and Opening Folding Rat Trap that may be set by the hands or foot; A Money Drawer more roomy, yet smaller and cheaper, with a Cathedral Gong Alarm instead of a cow bell; A Cash Register with a little metal ball like this ● that accomplishes all that "National Bankrupt" Registers do?

"Surprise" Rat Trap.

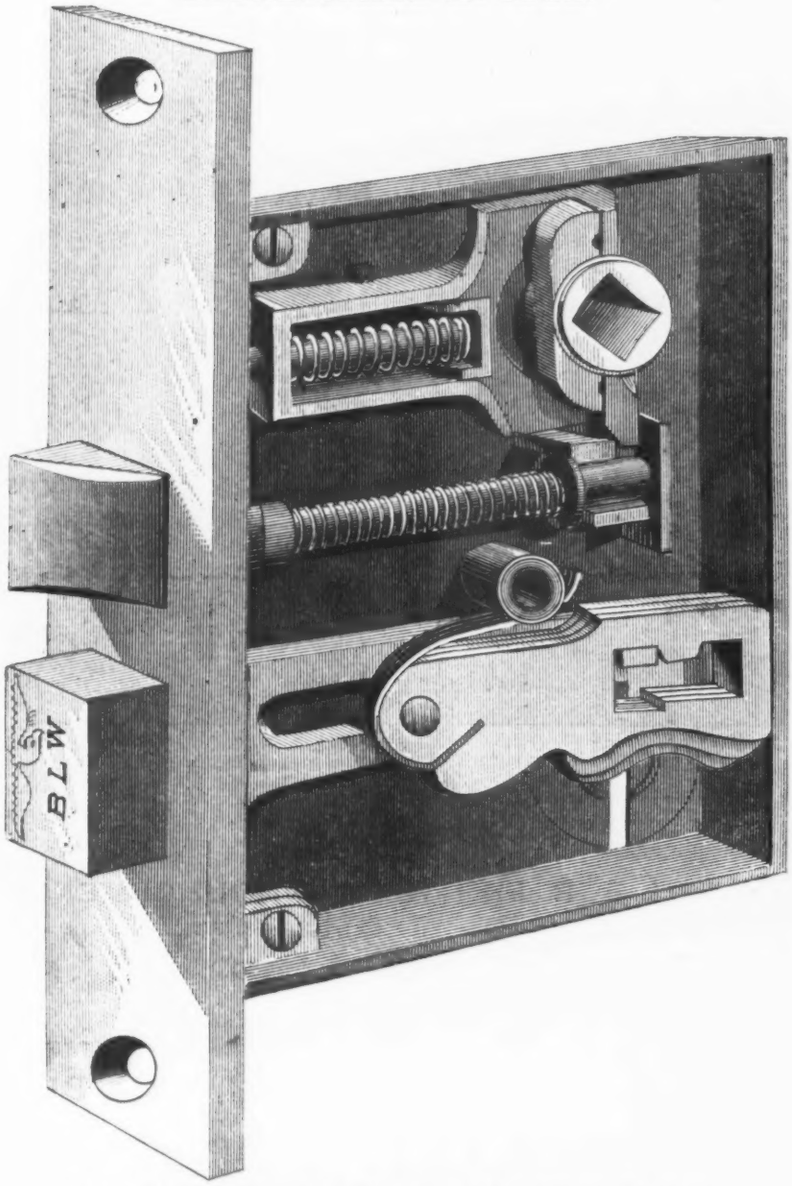
Answer: THE JNO. M. WADDEL MFG. CO.,
GREENFIELD, OHIO.

(But don't tell any one we told you.)

BRANFORD LOCK WORKS,

BRANFORD, CONN, U. S. A.

ESTABLISHED IN 1862.



MORTISE KNOB LOCK, No P500, 4¼ in. x 3½ in.

EASY SPRING.

Patent Nickel Plated Steel Keys. Three Tumblers of cold rolled Polished Steel.

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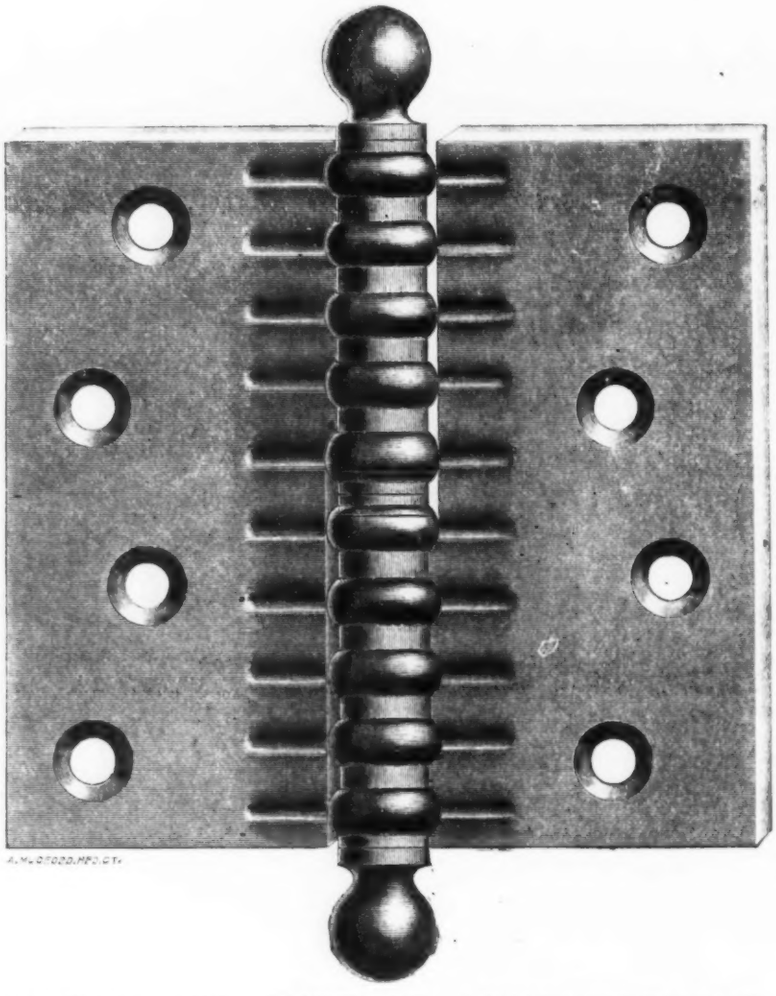
IN PREPARATION!

Corrugated Wrought Steel Butts.

—X—

STRONG AND HANDSOME.



A Better Steel Butt is an Impossibility

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NEARLY READY FOR THE TRADE.

WATCH FOR FURTHER ANNOUNCEMENT.

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STANDARD GOODS.

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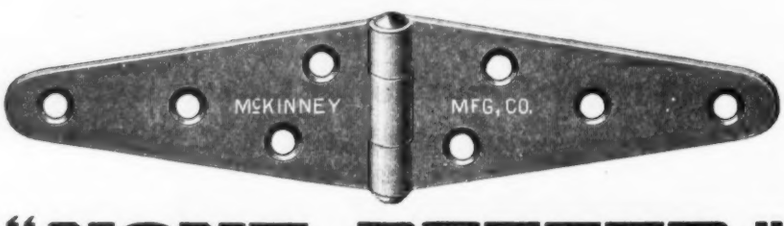


ORDERS FILLED ON SIGHT.

"NONE BETTER."

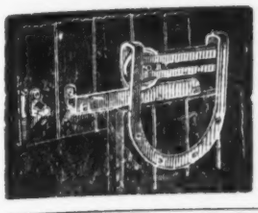
THE SWIFT MILL.

ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.

Lane's Measuring Faucet.

LANE'S PATENT STEEL DOOR HANGER.



The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. LANE'S PATENT TRACK is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

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Lock Mfg. Co., Kenton, O.

With freights in our favor and a line of Builders' Hardware unsurpassed for quality, finish and design we are in position to offer special inducements. Try us.

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Lock Mfg. Co., Kenton, O.

LOCKS.

OUR No. 717 INSIDE SET.

We Pack this Set Complete.

Lock, Knobs and Escutcheons, with screws.

Three Sets in a box. All ready for use.

We also make Front Door and Vestibule Sets in all styles of finish.

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OFFICE, 71 and 73 Ontario St. FACTORY, 30, 32 and 34 Noble St.

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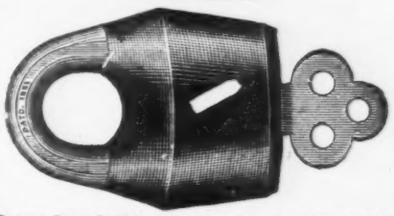

Patent Inter-Locking Tumbler Scandinavian or Jail PAD LOCKS, in 56 grades and sizes. Key and Self-Locking. Brass Bronze and Malleable Iron. Red, Black, Bright and Bright Brown finish. We make no Cast Iron goods. High class goods at same price as the inferior imitations. All fully illustrated and described in our new catalogue, furnished free.

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PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes, ¾ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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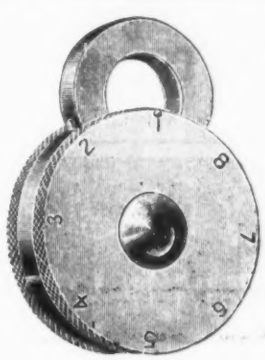
Sole Mfrs. of

Self-Locking Scandinavian Padlocks.

The best, most durable, and most convenient Padlocks made; of No. 427

Unpickable Flat Bronze Spring Padlock,

Most secure, and finely finished Padlock made, and of Lancaster Drive Sash-Pulleys, best and cheapest Sash-Pulleys on the market.



IF COMBINATION LOCKS

ARE NECESSARY ON YOUR

SAFES AND VAULTS,

WHY NOT PROTECT YOUR

HOUSE DOORS

and all other places containing valuables with them? We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

THE CANTON COMBINATION LOCK CO., CANTON, O.

HARDWARE DEALERS

CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

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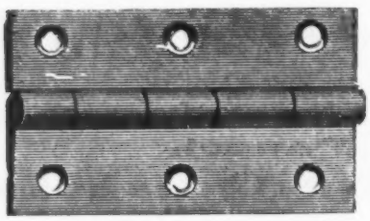

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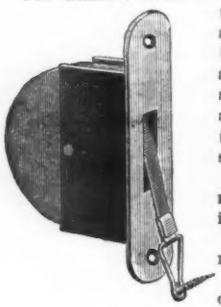
A Pronounced Success

BY LEADING ARCHITECTS.

This is not a Complicated Combination of Steel Ribbon, Pulleys, Attachments and Weights. Our Balance costs the consumer half the money and lasts twice as long. Requires no Box Frames. Can be applied to old as well as new windows, exactly counterbalancing the weight of the sash.



Steel Frame Aluminum Tape. Practically indestructible.

Every Balance warranted.

Ask for Pullman and don't confuse ours with imitations.

THE PULLMAN SASH BALANCE CO., Rochester, N. Y.

Perfection Sash Balance

Trade-Mark.

The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

Each balance is fully warranted for ten years.

PERFECTION SASH BALANCE CO.,

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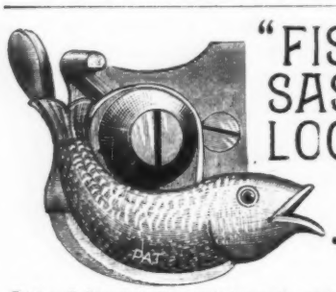


"FISH" SASH LOCK.

Best and cheapest substitute for cords and weights in new or old buildings of moderate cost.

SAMPLES FREE.

J. R. CLANCY, - SYRACUSE, N. Y.

VICTOR MFG. CO., Newburyport, Mass.

Showing one-half set of hangers attached to door.

STEEL RAIL.

The Only Bracing Bracket Made.

PRICE-LIST.

		Per Doz. prs.
HANGERS.		
No. 5, to run 6 feet, 3½ in. wheel,	-	$10.00
No. 6, to run 10 feet, 4½ in. wheel,	-	15.00
No. 7, to run 15 feet, 5½ in. wheel,	-	22.00
RAIL, per foot.....		6½ cents.

The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

CALDWELL MFG. CO., Rochester, N. Y.

READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

STAR LOCK WORKS, PHILA.

HILLEBRAND & WOLF,

MANUF'RS OF

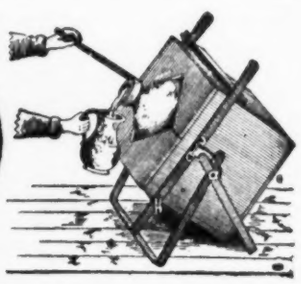
1ST QUALITY ONLY

SCANDINAVIAN AND SPRING PADLOCKS

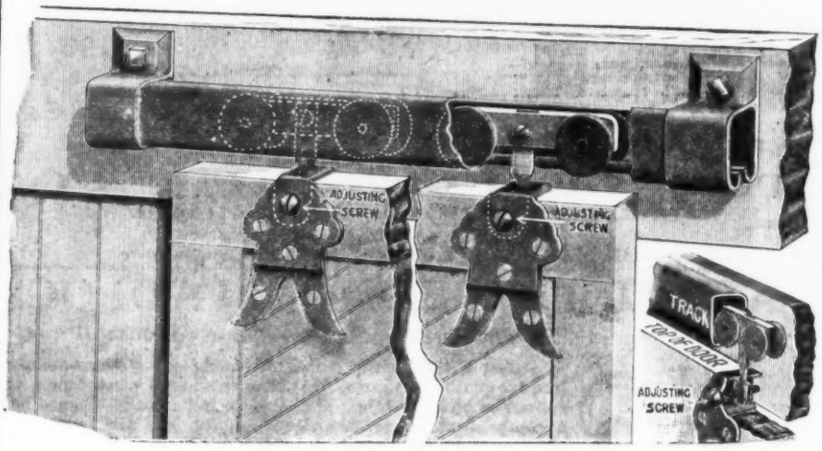
TRUNK & CASE LOCKS

CARBOY STANDS, &C.

CATALOGUES SENT ON APPLICATION.



SHUT THAT DOOR. I CAN'T.



THIS IS CUT OF BARN DOOR.

It's warped. You should have hung it on a Coburn Hanger. The warping of a door does not affect the running of the door on the track. No snow or ice can get into the track to block the same. The axle bearings are self lubricating. I'ts the only covered adjustable track on earth. Write for prices.

THE COBURN TROLLEY TRACK MFG. CO., Sole Makers.

HOLYOKE, MASS.

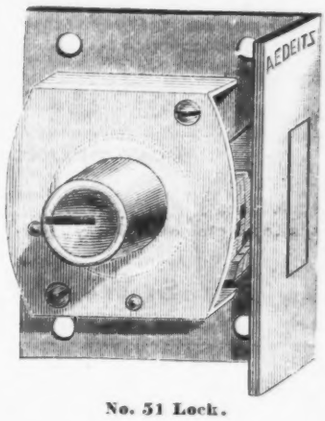
J. F. WOLLENSAK'S PAT. TRANSOM LIFTERS

Old Reliable — CLASS 3. CLASS 3. CLASS 4 | New Goods — EAGLE. CROWN. SHIELD.

FOR PRICES, &c., APPLY TO

J. F. WOLLENSAK, Patentee and Maker, CHICAGO, ILL

A. E. DEITZ.



No. 51 Lock.

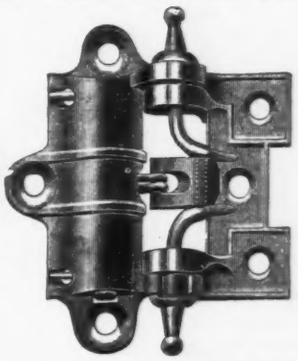
J. C. McCARTY & CO., Agents,

97 Chambers & 81 Reade Sts., New York.

Factory, BROOKLYN, E. D., N. Y.

NEW IDEA SPRING HINGE

Holds the door strongest when closed.



Resistance gradually decreases in opening

and increases in closing the door.

A covered (patented) hold-back Spring Hinge. Full particulars, free Sample and Prices by mentioning this paper.

STOVER MANUFACTURING CO.,

145 River St., Freeport, Ill.

Munger-Colton Mfg. Co.,

Manufacturers of

THE "AMERICA" TRANSOM LIFTER.

(Pat. March 15th, 1892.)

The Thumb Screw Standard and Guides are constructed with **Rotatable Bases.**

These **Revolving** or **Adjustable** Bases enable the Lifter to be secured to any style of moulding or narrow beading (see cut on right) and to either

RIGHT OR LEFT HAND SIDE OF DOOR.

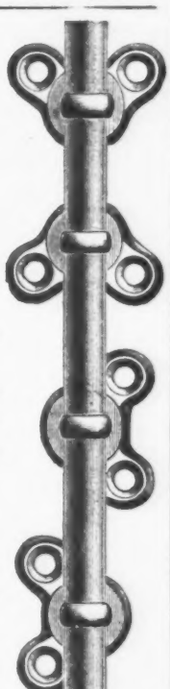
Saves Merchant carrying double stocks.

Send for Illustrated Circular of our full line of Lifters.

H. H. & C. L. MUNGER,

General Agents,

142 Lake St., Chicago.



Shows possible position of rotatable base

SASH WEIGHTS

E. E. BROWN & CO.,

McKean and Meadow Sts.,

PHILADELPHIA, PA.

WM. KROGSRUD,

Engraver and Die Sinker.

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Manufacturer of

STEEL STAMPS

For Every Purpose.

Steel Letters & Figures.

Burning Brands, Stencils, &c. Send for Illustrated Catalogue.

RINNS' PATENT

READY-MADE SASH CORDS.

BEST AND CHEAPEST.

Save **60 per cent** labor in hanging sashes

LIZZARD HORSE ICE CREEPER

Any one can put them on or off or put in new calks. Price, $3.00 set of 4, express paid. For single sets send shoe outlines. Worth more than cost for emergencies Agents wanted. Circulars free.

S. W. KENT,

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FROST'S ANTI-RATTLER

Pat. Jan. 20, 1880.

Cut One-half Size.

Sample pair sent to any hard ware or saddlery firm by ad dressing

The Frost Thill Spring Co.

Boston, Mass.

A. S. HENN & CO.,

Manufacturers of

Hardware Specialties, Can Openers, Pocket Wrenches, Mincing Knives, Clothes Line Pulleys, &c.

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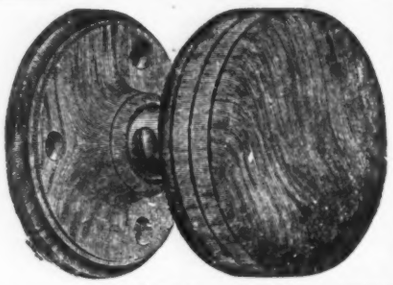

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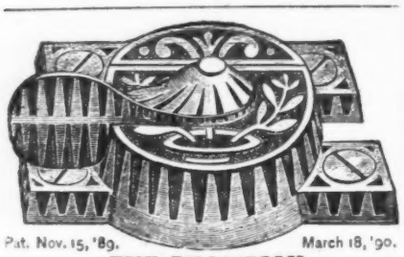

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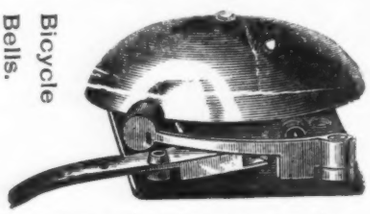

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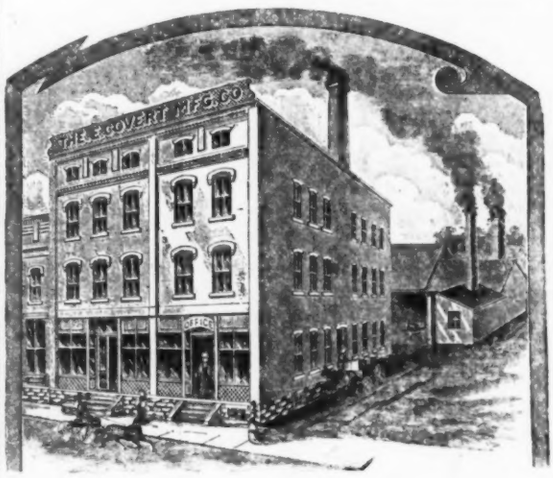

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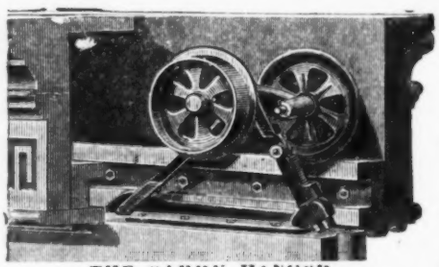

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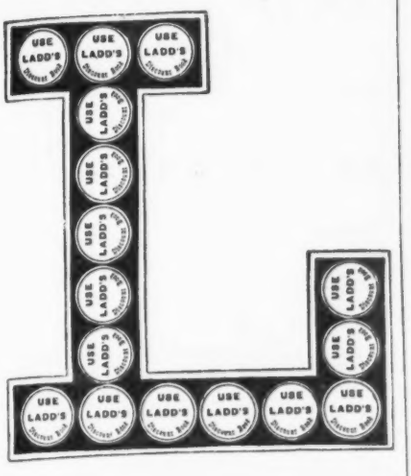

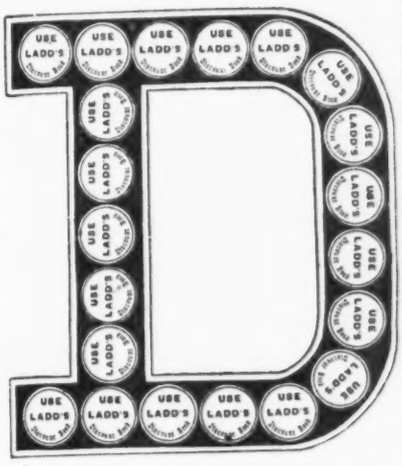

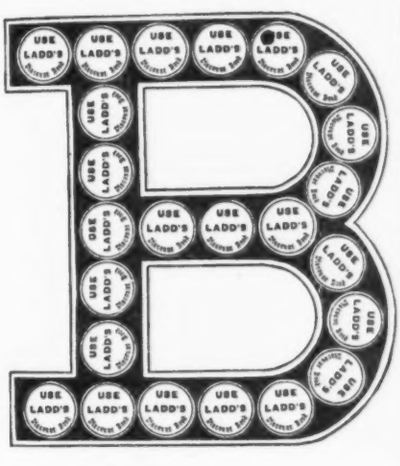

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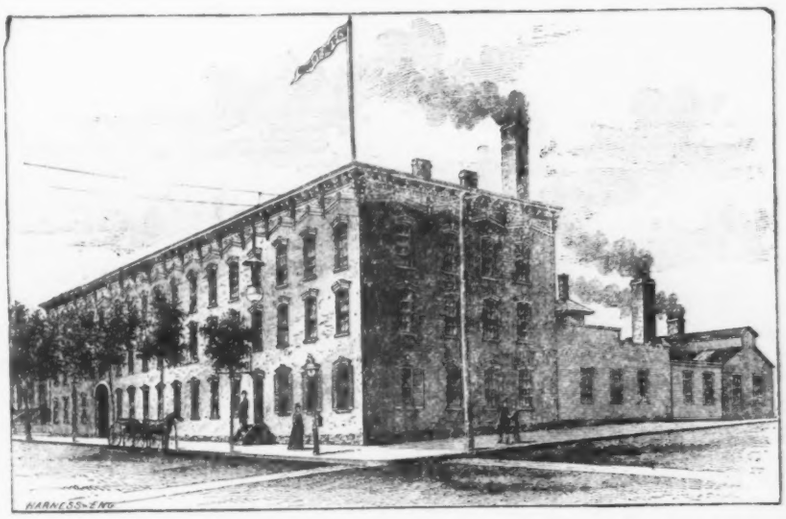

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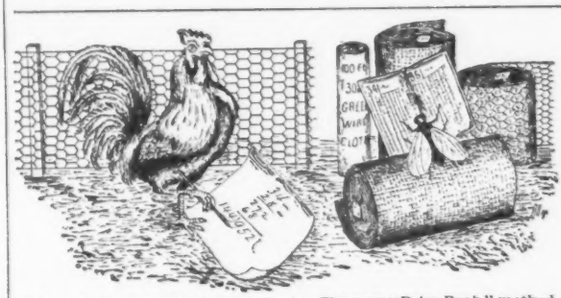

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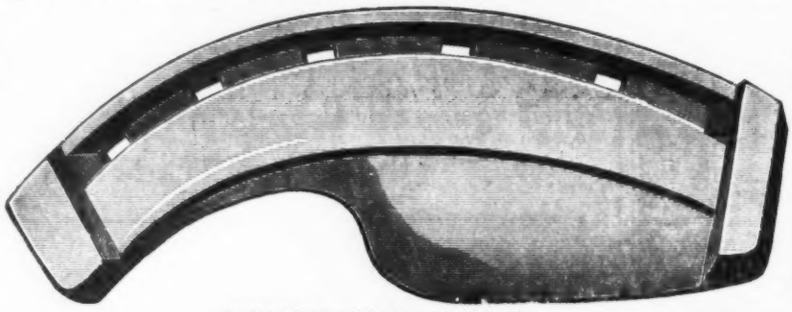

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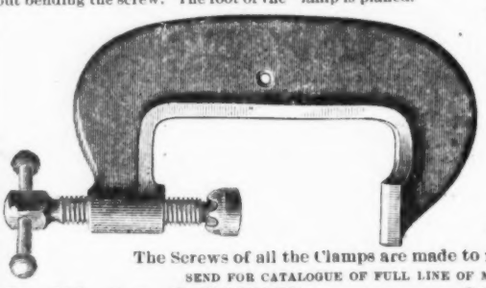

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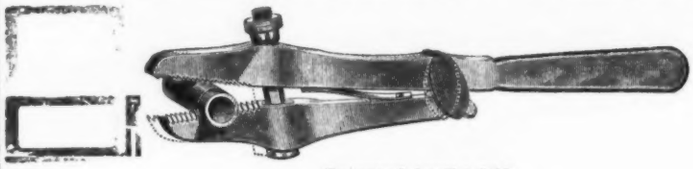

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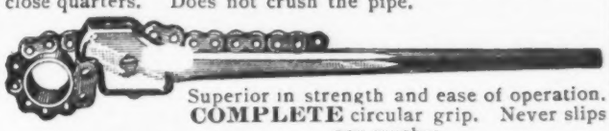

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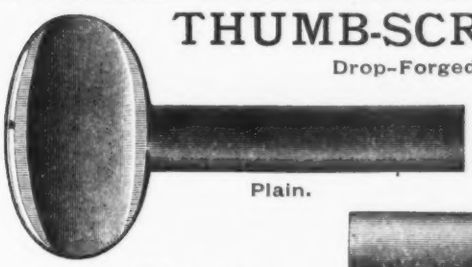

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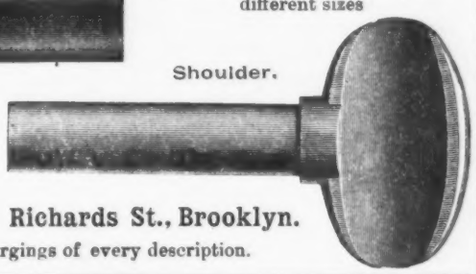

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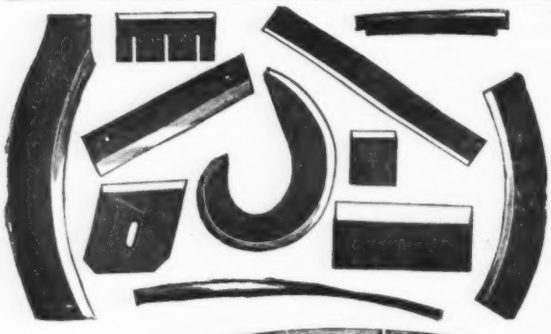

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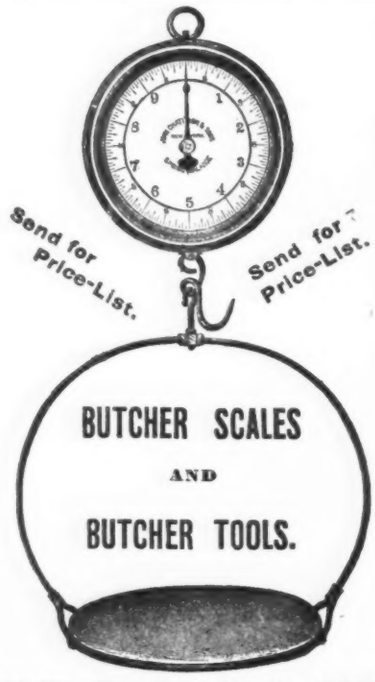

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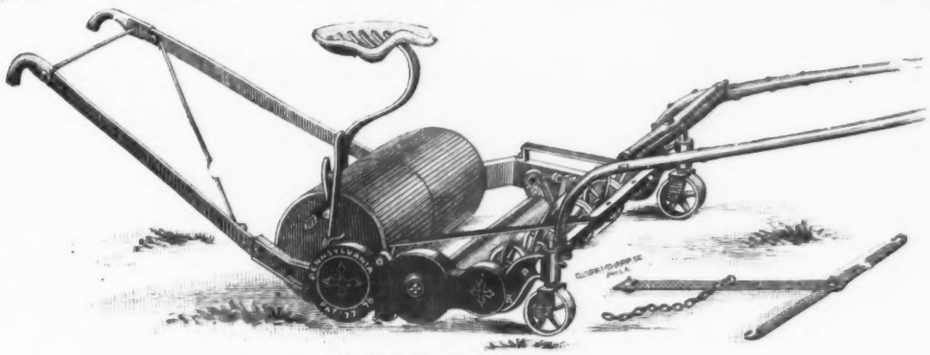

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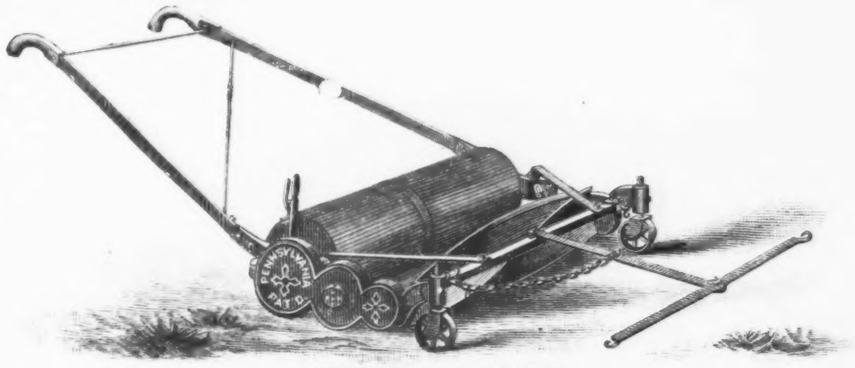

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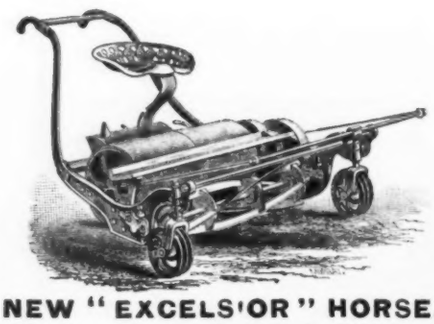
THE "RIVAL."



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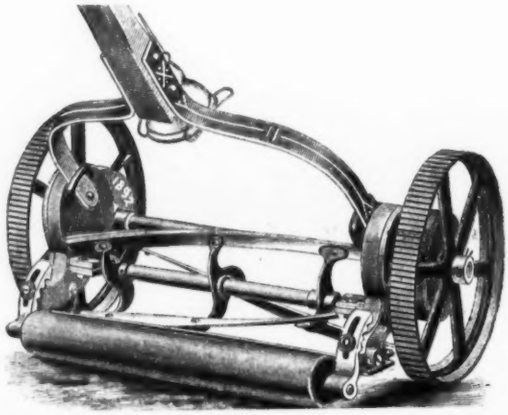

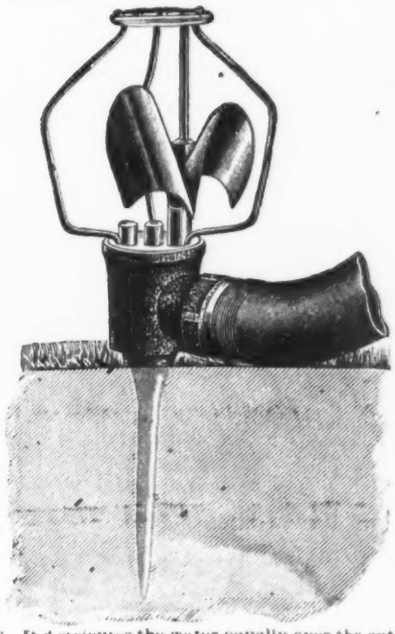

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BONNETTE'S ARC LAWN SPRINKLER.

Patented Oct. 20, 1891.

This Sprinkler was invented by a **DRY GOODS MAN** in Bay City, Mich. He noticed that when his neighbors set out their sprinklers, they wet all over the sidewalks as well as the lawns.

On going back and forth to the store he was often forced into the middle of the street to avoid a shower from the sprinkler. Ladies often ruined their dresses from this source.

It set him to thinking. Sprinklers should not be a nuisance. Could one be made that would sprinkle, if desired, in a half circle? He thought so. He commenced to work and experiment.

That was five years ago. It required lots of patience and there were many disappointments, but to-day,

NOTE THE RESULT.

Five good reasons why this is the best sprinkler to buy:

1. It will not clog up.
2. It will sprinkle a circle from 4 to 40 feet in diameter, according to the water pressure.
3. It distributes the water equally over the entire surface, wasting none around the base of the machine.
4. **This is the only machine ever invented that will sprinkle water in a half-circle,** thus preventing the wetting of walks while thoroughly sprinkling the lawn.
5. It can be changed from a circle to a half-circle, or *vice versa*, in five seconds.

We now claim to have the only perfect sprinkler in existence. It is simple, will not wear out nor clog up. Is well made and handsomely nickled, is boxed singly with full directions how to use. Its merits are, without question, pre-eminently superior to any other. Prices and samples sent upon application.

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JOBBERS ONLY SUPPLIED.

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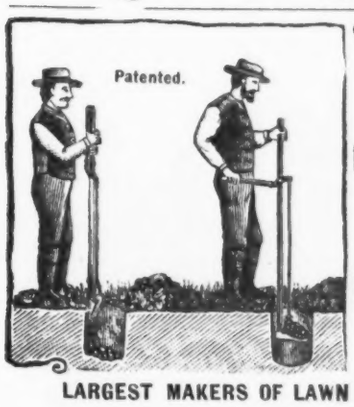

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Best Made.

Enlarged View of Lever.

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¾ inch regular syringe Thread, (or Pipe Thread to order) per doz. $7.50
1 Inch, Hose Gas Pipe Thread, " 12.00
Sample Sprinkler sent prepaid on receipt of 60 cents

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PATENT

Lawn Sprinkler.

Cheapest and Best in Use.

The Spray from it covers upward of 1000 *sq. feet of lawn.* It is the only patent adjustable Sprinkler which is adaptable to any water pressure. Being made of brass, and having no revolving parts to wear out, or small opening to clog up, it can be operated with sandy or muddy water as well as clear, and will last for years. To operate, screw Sprinkler on end of hose, stick the rod into the ground in a vertical position, adjust the acorn to suit pressure and spray wanted and it is ready for use. It may be so regulated as to throw a spray *as coarse as rain or as fine as mist*, and will make one of the most beautiful fountains imaginable. It is unequaled in merit, requires no attention and is sold at a less price than any sprinkler in the market. Remember, the RIVAL is the only Sprinkler made by which the coarseness of the spray and the area to be wet can be regulated. They are packed 1 doz. in a box, and finished either plain or nickel-plated.

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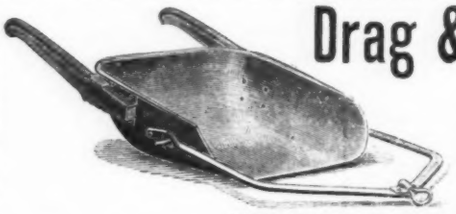

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INDESTRUCTIBLE, BEAUTIFUL, CHEAP.

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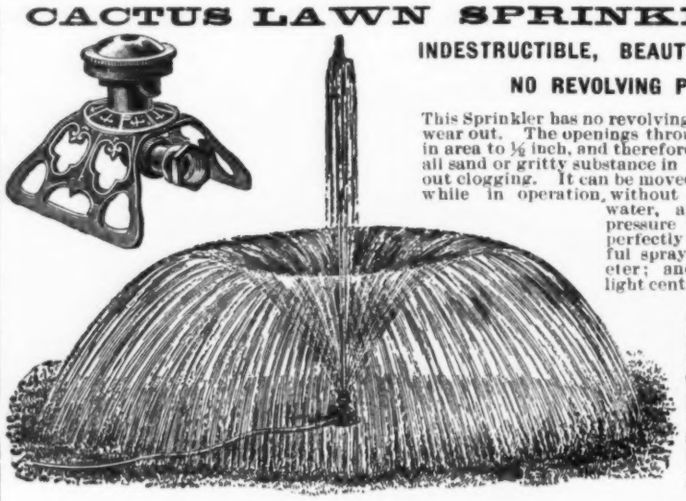

This Sprinkler has no revolving parts to leak or wear out. The openings throughout are equal in area to ¼ inch, and therefore will pass freely all sand or gritty substance in the water without clogging. It can be moved about the lawn while in operation, without turning off the water, and with a low pressure will distribute a perfectly even and beautiful spray 30 feet in diameter; and in addition a light center fountain spray 15 to 18 feet in height. It is recommended as the most durable, beautiful and cheapest Sprinkler in the market and is guaranteed to give entire satisfaction to any purchaser. For sale by all dealers.

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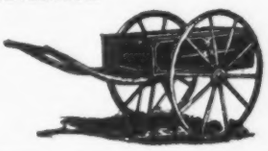

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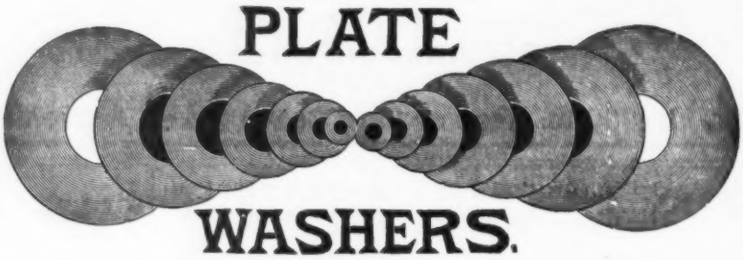

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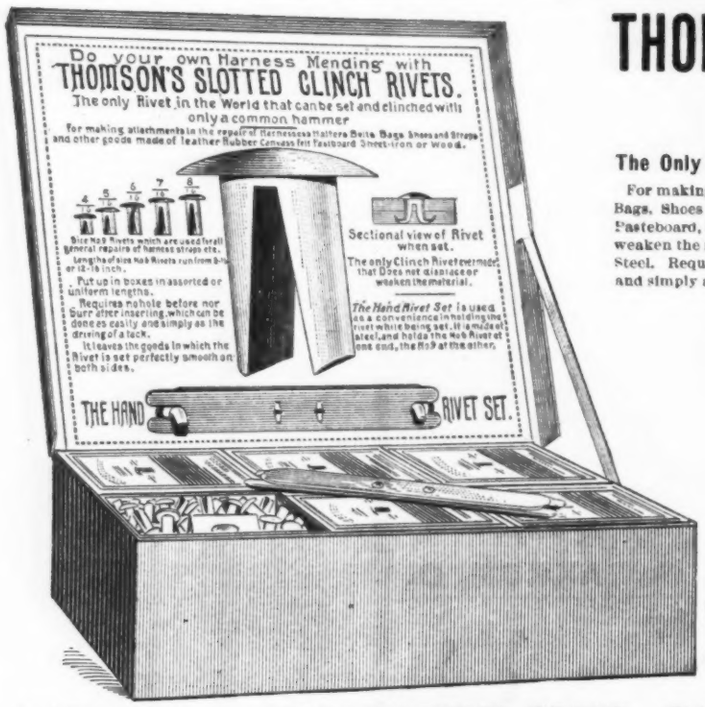

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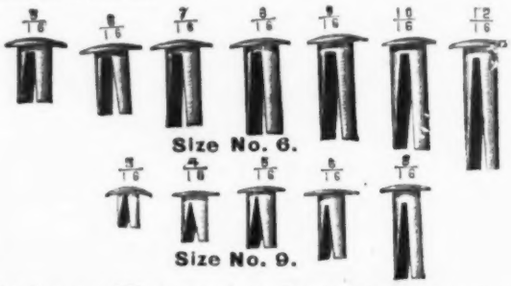

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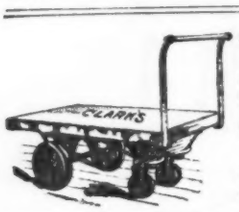

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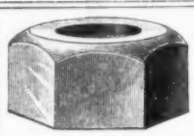

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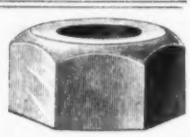

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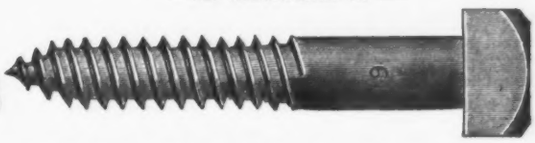

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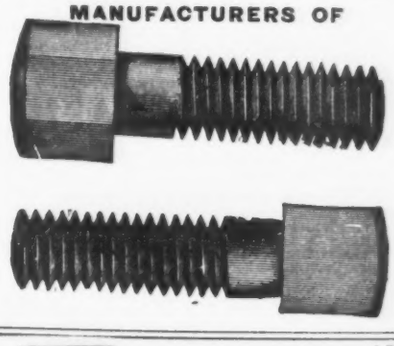

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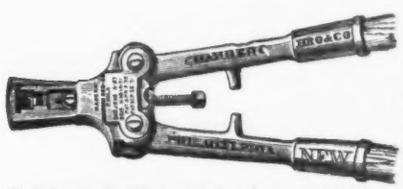

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Montour Iron & Steel Co., Danville, Pa.
Mahoning Valley Iron Co., Youngstown, Ohio.
Reeves Iron Co., Canal Dover, O.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.

Bellows, *Manufacturers of.*
Bullock Bellows Co., Cleveland, O.
Scott, Geo. M., Chicago, Ill.

Bells.
Bevin Bros. Mfg. Co., East Hampton.

Belt Dressing.
Jos. Dixon Crucible Co., Jersey City, N. J.

Belt Fasteners.
Claflen Mfg. Co., Cleveland, Ohio.
Talcott, W. O., Providence, R. I.

Belting, *Makers of.*
Alexander Bros., 412 N. 3d., Phila.
Jeffrey Mfg. Co., Columbus, O.
Link Belt Engineering Co., Phila., Pa.
Main Belting Co., Philadelphia, Pa.
N. Y. Belting & Packing Co., Ltd., N. Y.
Rossendale Belting Co., Newark, N. J.
Shultz Belting Co., St. Louis, Mo.

Bicycles.
Coventry Machinists Co., L'd, Boston, Mass.
Eagle Bicycle Mfg. Co., Torrington, Ct
Lovell, Jno. P. Arms Co., Boston, Mass
McIntosh-Huntington Co., Cleveland, O
Monarch Cycle Co. Chicago, Ill.
Pope Mfg. Co., Boston, Mass.
Read, Wm. & Sons Boston Mass.
Rouse, Hazard & Co., Peoria, Ill.
Sweeting Cycle Co., Philadelphia, Pa.
Western Wheel Works, Chicago, Ill.

Bits and Braces.
Backus Mfg. Co., Williamsport, Pa.
Bridgeport Gun Implement Co., 313 315 Broadway, N. Y.
Jennings G. F. & Co. 97 Chambers N Y
Sargeless, Dunn & Alder, 97 Chambers St., N. Y.

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Cleveland Block Co., Cleveland, O.
Fulton Iron & Engine Works, Detroit Mich.
Toledo Block Works, Toledo, O.

Blowers.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Huvett & Smith Mfg. Co., Detroit, Mich.
Sturtevant, B. F., & Co., Boston, Mass.

Boiler Makers' Rolls.
New Doty Mfg. Co., Janesville, Wis.

Boiler Makers' Supplies.
Western Iron & Supply Co., St. Louis, Mo.

Boiler Plates.
McIlvain, Wm. & Sons, Reading, Pa.
Lukens Iron & Steel Co., Coatsville, O.
Pottstown Iron Co., Pottstown, Pa.

Boilers, Copper.
Randolph & Clowes, Waterbury, Conn

Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt.
Edge Moor Iron Co., Wilmington
Harrisburg Foundry & Mch. Works, Harrisburg Pa.
Kendall, Edw. & Son, Cambridgeport, Mass.
Pollock, W. B. & Co., Youngstown, O.
Southwark Fdy. & Mch Co., Phila., Pa
Wetherill, Robt. & Co., Chester, Pa.

Bolt Cutters.
Chambers Bros. Co., Philadelphia.
Howard Iron Works, Buffalo N. Y.
Porter, H. K., Boston, Mass.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Ore.
Linsley, F. J., New Haven Conn.
Williams, David 96 & 102 Reade N. Y
Wolcott & West, Syracuse, N. Y.

Boxes, Hdw. Shell, &c.
Green, A. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Box Openers.
Paragon Mfg. Co., 112 Chambers St.,

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Davol, John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., Waterbury, Conn.
Waterbury Brass Co., 296 B'way, N. Y.

Brass Butt Hinges.
Tiebout, W. & J., 16 & 18 Chambers

Brass Founders.
Cramp, B. H. & Co., Philadelphia, Pa.
Haight & Clark, Albany, N. Y.
Reeves, Paul S., Philadelphia.
Springfield Foundry Co., Springfield, Mass.

Brass Goods.
Brass Goods Mfg. Co., 88 Chambers,

Bridge Builders.
Berlin Iron Bridge Co., East Berlin, Ct

Broilers.
Sun Stamping Co., Kalamazoo, Mich.

Bronze (Tobin).
Ansonia Brass & Copper Co., 19-26 Cliff Street, N. Y.

Brooms and Brushes.
Lay, Jos. & Co., Ridgeville, Ind.

Builders' Hardware.
Branford Lock Wks. Branford, Conn.
Claflin Mfg. Co., Cleveland, Ohio.
Deitz, A. E., 97 Chambers St., N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co., Reading, Pa.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Ct.

Butcher and Shoe Knives, *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson, John, Sheffield, England.

Butts and Hinges.
McKinney Mfg. Co., Alleghany, Pa.
Sabin Machine Co., Montpelier, Vt.
Stanley Works, New Britain, Conn.
Tiebout, W. & J., 16 Chambers, N. Y.

Cabinet Makers' Bench.
Grand Rapids Hand Screw Co., Grand Rapids, Mich.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Can Openers.
Chieftain Company, Canton, O.

Car Axles.
Roberts, A. & P. & Co., Phila.

Carboy Stands.
Hilleubrand & Wolf, Philadelphia, Pa.

Car Wheels.
Whitney, A. & Sons, Phila.

Carriage Hardware, *Makers of.*
Covert, E. Mfg. Co., Farmer Village, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe Co., Birmingnam, Conn.

Cartridge Reloading Tools.
Ideal Mfg. Co., New Haven, Conn.

Casters, Wheel, &c.
Clark, G. P., Windsor Locks, Conn.

Cash Carrier.
Utility Mfg. Co., Ltd., E. Saginaw, Mich

Cash Registers
National Cash Register Co., Dayton, O.

Castings, Iron and Steel.
Ames Sword Co., Chicopee, Mass.
Arcade Malleable Iron Co., Worcester Mass.
Aschman Steel Casting Co., Sharon, Pa
Booth, The Lloyd, Co., Youngstown, O.
The Burr & Houston Co., Brooklyn, N. Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Cheney, S. & Son, Manlius, N. Y.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Herrick, J. A., 284 Pearl St., N. Y.
Jackson & Woodin Mfg. Co., Berwick, Pa.
John on Company, Johnstown, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Mahoning F'dry & Mch Co., Danville, Pa.
New Castle Steel Casting Co., New Castle, Pa.
Norristown Steel Co., Norristown, Pa.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Novelty Iron Works, Allentown, P.
Palmers & De Mooy, Cleveland, O.
Pratt & Letchworth, Buffalo N. Y.
St. Louis Steel Fdy. Co., St. Louis, Mo.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
Springfield Steel Casting Co., Springfield, O.
Standard Fdy. & Mfg. Co., Cleveland, O
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.
Trenton Mal. Iron Co., Trenton, N. J.
Union Mfg. Co., 103 Chambers St., N. Y.
Wetherill, Robt. & Co., Chester, Pa.

Cellar Drainers.
Friesenwald Bros., Baltimore, Md.
Kemp, Clarence M., Baltimore, Md.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co. Pawtucket, R. I.
Link-Belt Engineering Co., Phila. a.
McKay, Jas. & Co., Pittsburgh, Pa.

Cherry Stoners.
Enterprise Mfg. Co., Philadelphia, Pa.

Chimneys.
Phila. Engineering Works., Phila., Pa.

Chisels, *Manufacturers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks Conn
Nat. Chuck Mfg. Co., Mt. Vernon, N. Y.
Oneida Mfg. Chuck Co., Oneida, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
Whitcon, D. E. Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn
Le Count, C. W., So. Norwalk, Conn.

Clipping Machines.
McCoy, Jos. F. & Co., 26 Warren St.

Clock Springs, *Manufrs of*
Haley Mfg. Co., Concord, N. H.

Coal.
Wister, Francis, Philadelphia

Coffee and Spice Mills.
Chilicothe Mfg. Co., Chillicothe, O
Lane Bros. Poughkeepsie, N. Y
Waddel, Jno. M. Mfg. Co., Greenfield, O

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited) 4 and 6 Warren, N. Y.

Conveyors.
Link Belt Engineering Co., Phila., Pa.

Copper.
Ames Sword Co., Chicopee, Mass.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Edes, Edw. L., Plymouth, Mass.
Hendricks Bros., 19 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N. Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.
Wister, Francis, Philadelphia, Pa.

Cordage.
Elizabethport Cordage Co., 46 South,

Corn Huskers.
Perkins, A. H. Mfg. Co. Kewanee, Ill.

Corn Shellers.
Goulds Mfg. Co., Seneca Falls, N. Y.

Corrugated Furnaces.
Continental Iron Works, Brooklyn N. Y.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.

Counting Machines.
Osborn, G. Edw. & Co., New Haven, Ct.

Coupling.
Almond, T. R., Brooklyn, N. Y.

Coverings, Boiler and Pipe.
Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Allentown Rolling Mills, Allentown, Pa
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Kohler, F. E. & Co., Canton, O.
Noyes, H. B. & Co., Greenfield, Mass.
Spring Curry Comb Co., So. Bend, Ind.

Cutlery Cases.
Torrey, J. R. & Co., Worcester, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N. Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co., Chicago, Ill.
Curtiss, J. & Bro., 6 Warren St., N. Y.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N. Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain, Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.
Union Hardware Co., Torrington, Ct.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas T., Philadelphia Pa.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa
Rhode Island Tool Co., Providence, R. I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W., & Co., Ltd., Brooklyn, N. Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Egg Poachers.
Shepard, Sidney & Co., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevator Gates.
Webster & Perks Tool Co., Springfield, O.

Elevators, *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R. I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co. Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa
Swindell W. & Bros., Pittsburgh, Pa.
Tallman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

See Alphabetical Index, Page 124.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Ball Engine Co., Erie, Pa.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry & Machine Works, Harrisburg Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn
Church, Isaac, Toledo, O.

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, L. C. & Son, Hartford, Conn.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum, E. T. Detroit, Mich.
Champion Iron Co., Kenton, O.
Cleveland Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Fiber Ware.
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdry. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collins, Victor, Detroit, Mich.
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass

Garden Tools.
Noyes, R. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp, Clarence M., Baltimore, Md

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. S. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Works.

Glass Gauges.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. , & Co., Gloucester, Mass.
Improved Process Glue Co., Gloucester Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co. Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co. Chicago, Ill.
Gennon & Krause, Chicago Ill
Norton Emery Wheel Co., Worcester, Mass.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gun Implements.
Union Hdw. Co., Torrington, Conn.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hand screws.
Grand Rapids Hand Screw Co., Grand Rapids, Mich

Hangers, Door.
Central City Bolt Co. Syracuse, N. Y.
Coburn Trolley Track Mfg Co, Holyoke, Mass
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brady Mfg Co., Brooklyn, N. Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Graham, John H. & Co., 115 Chambers,
McCoy, Jos. F. Co., 28 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y
Surplee, Dunn & Alder, 97 Chambers St., New York.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Cleveland Fdy. Co., Cleveland, O.
Coplin , Hdw. Mfg. Co., Worcester, Mass.
Cronk Hanger Co., Elmira, N. Y
Elliott Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Weiland Coas, 143 Chambers St., N. Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Oakes & Irwin, Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Mars Machine Co., Philadelphia.
Moore Mfg & Fdy. Co, Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co, Sidney, O

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. S., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St., N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Peerless Freezer Co, Linn, O
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York
Sherwood Mfg. Co., Buffalo, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm H. & Co., Philadelphia.
Corning, Edw. & Co., 39 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia
Pilling & Crane, Philadelphia, Pa.
Waltsaum, W. H. & Co., Philadelphia.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cuniffe, Philadelphia.
Corning Edw. & Co., 39 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 446 West St., N. Y.
Navior & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Wangin, St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Gere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Walbaum, W. H. & Co Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit. Mich.

Lanterns.
Dietz, A. E. & Co, 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo, N. J. Wire Cloth Co., Trenton, N. J.

Lawn Reapers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lane, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw Co., Philadelphia, Pa.

Lawn Sprinklers.
Bonnette Arc Sprinkler Co., Bay City, Mich
Etue & Henger Mfg Co, St. Louis Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., 4th L. Mass.

Locks & Latches, *Manufacturers of.*
Branford Lock Wks., Branford, Conn.
Buttan, Graham & Mathes, Pittsburgh Pa
Canton Combination Lock Co., Canton, Ohio.
Clafien Mfg. Co., Cleveland, O.
Delta, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw Co, Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Selbert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Macaine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Audubon Mch. Wks., New Haven, Conn.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bertsch & Co., Cambridge City, Ind.
Bickford, H., Lockport N. Y.
Blanchard & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E. 45 Dey, N. Y.
Brainerd Milling Mch. Co., Chicago.
Bridgeport Mch Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin & Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y
Fitchburg Mch Works, Fitchburg, Mass
Gould & Eberhardt, Newark, N. J.
Harrington, E. son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Henley Mch. Tool Works, Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
MacKinnon, J. A. Mch Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y
Manville, E. J. Mch. Co, Waterbury Conn.
National Machinery Co., Tiffin, Ohio
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Ass'n Depew, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Falls.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Webster & Perks Tool Co., Greenfield, O
Wetherill, Robert & Co., Chester, Pa.
Wilkes Bros. Saginaw E. S., Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt. Jno. & Son, New Haven Conn.

Machine Tools —*See Machinery.*

Machinists' Scales.
Comin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Bond Land F. & C. , Chicago.
Norfolk & Western R. R.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bet lehem, Pa.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg, Q & C Co, Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Machinery.
Gates Iron Wks., Chicago, Ill.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochenaour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila

Motors, Water and Electric.
Belknap Motor Co., Portland, Me.
Thomson-Houston Motor Co., Boston, Mass

Muzzles.
Cincinnati Mfg. Co., Cincinnati, Ohio.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 544 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Nutmeg Grater.
Edgar Mfg. Co., Reading, Mass.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg Co., Boston, Mass

Oil Cups and Lubricators.
Sherwood Mfg. Co., Buffalo, N. Y.

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

See Alphabetical Index, Page 124.

Selbert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting & Packing Co. Ltd , N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co , Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J
U. S. Graphite Co , Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Bell, C. T., Washington, D. C
Dudley, W. U. & Co. Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Washington.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Hall & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord. Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Parclay, N. Y.

Pipes, Fittings, &c., *makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Gibbs Mfg. Co., Canton, O.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, F. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dieterich & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Tingle, Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Too Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power. *Makers of,*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Fixings.
Foley, J. W. & Co., Cincinnati, O.

Pulleys.
Reeves Pulley Co., Columbus, O.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Goulds Mfg. Co., 60 Barclay St., N. Y.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Goulds Mfg. Co., 60 Barclay, N. Y.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Wais & Roos, Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. R. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Foston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Curley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Northern Refrigerator Co., Grand Rapids, Mich
Weiland, Chas. 143 Chambers St., N.Y.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Gates Iron Works Chicago, Ill.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co. 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O
Johns, H. W. Mfg Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Saw Irons.
Univer al Saw Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co, Phila., Pa.

Sand Paper Machinery.
York Emut Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B, & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co. 97 Chambers, N.Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co , Fitchburg, Mass.
Wheeler, Madden & Clemson Mfg. Co. Middletown, N. Y.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting. *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel, *—Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24 29 West St , N. Y.
Reeves Iron Co., Canal Dover, O.
Reilly, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Union Hardware Co., Torrington, Conn
Winslow, Sam'l, Skate Mfg. Co, Worcester, Mass.

Skates, Roller.
Bent, Y. M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 104 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg Co., Brockton, Mass
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N.Y
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y

Spring Keys and Cotters.
Jenoks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co , Bridgepor Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co. Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth, Mass.
Tit hener, E. H. & Co., Binghamton N. Y.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
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Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
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Page, Newell & Co., Boston, Mass.
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Steel (Musket's Special).
Jones, B. M. & Co., Boston.

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Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
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Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
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Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
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Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co , Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
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Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
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Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
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Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
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Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stove Polish.
Raven Stove Polish Co., Chicago, Ill.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

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Steam Gauge & Lantern Co., Syracuse, N. Y.

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A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
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Testing Machines.
Riehle Bros. Testing Mch. Co., Phila.

Testing Laboratories.
Riehle Bros. Testing Mch. Co., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Tire Cement.
Am. Trading Co., 182 Front, St., N. Y.

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Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
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Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Cincinnati Tool Co., Cincinnati, O.
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
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Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.
Tower & Lyon, 95 Chambers St., N. Y.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasoline.
Dangler Stove & Mfg. Co., Cleveland, O.

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollenau, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co., Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Shelby Steel Tube Co., Shelby, O.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
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Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co. 44 Barclay N. Y.
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Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
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Washers.
Haskell, Wm. H. Co., Pawtucket, R. I.
Lanman, E. S., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Washing Machines.
Diether & Barrows, Ft. Wayne, Ind.
Wayne, Anthony Mfg. Co., Ft. Wayne

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Kemp, Clarence A., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows.
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Blinds.
Durstine, Jacob, Wooster, O.

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Mill r & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. H. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Fence Stretchers.
Wire Fence Supply Co., Indianapolis, Ind.

Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn
Cincinnati Mfg. Co., Cincinnati, Ohio
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Eckstein, Chas. G. & Co., 41 John N. Y

Wire Nails.
Amer. Wire Nail Co., Anderson, Ind.
Baackes Wire Nail Co., Cleveland, O.
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill.
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel *Makers.*
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California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood Mantels.
Ironton Wood Mantel Co., Ironton, O.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches, *Manufacturers of.*
American Saw Co., Trenton, N. J.
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
Rhode Island Tool Co., Providence, R. I.
Tower & Lyon, 95 Chambers St., N. Y.
Tremont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

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Colby Wringer Co., Montpelier, Vt.
Peerless Mfg. Co., Cleveland, O.

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Edes, Edw. L., Plymouth, Mass.

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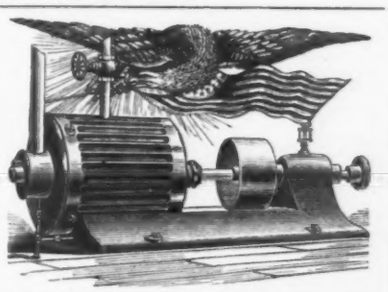

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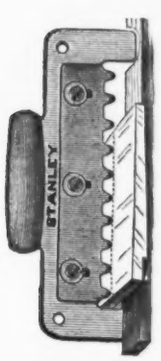

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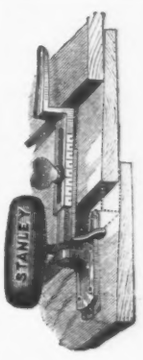

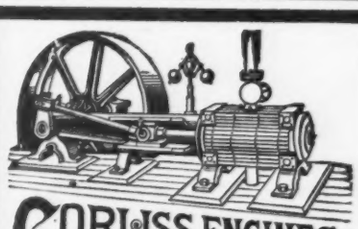

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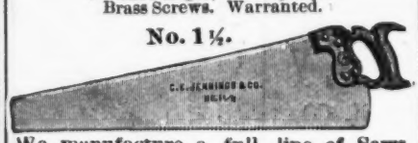

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Vol. XLIX. No. 21. *New York, Thursday, May 26, 1892.* $4.50 a Year, including Postage. Single Copies, Ten Cents.

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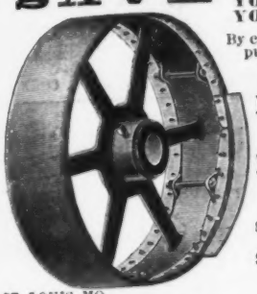

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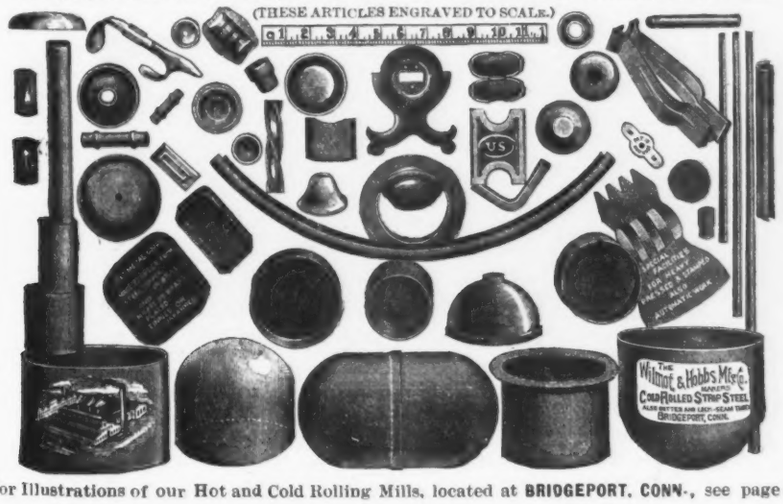

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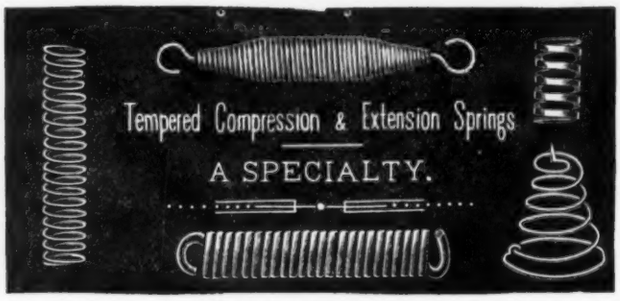

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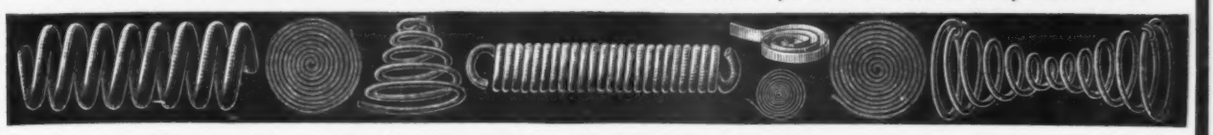

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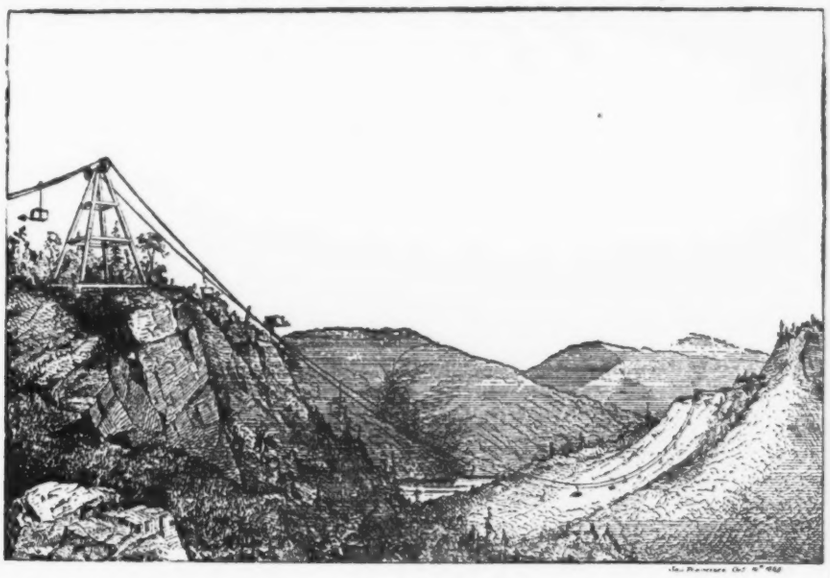

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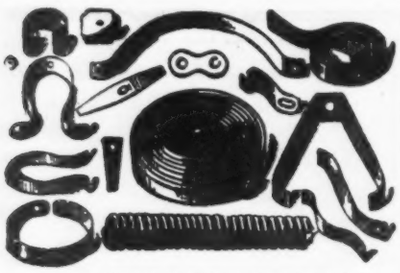

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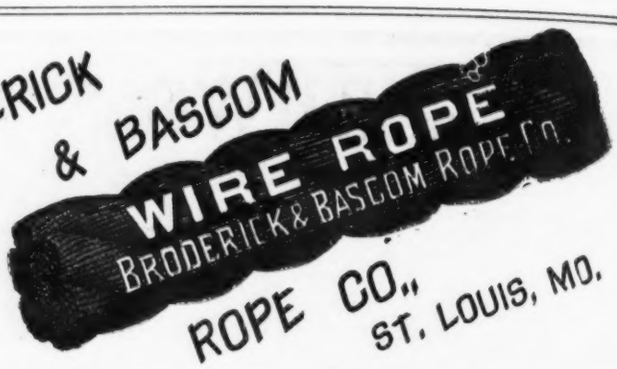

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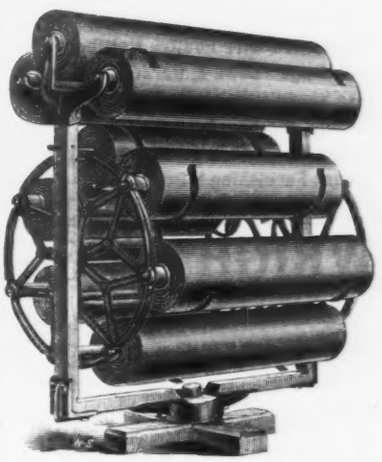

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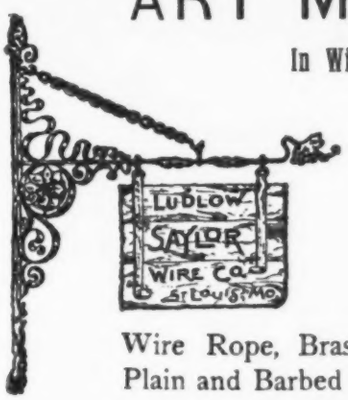

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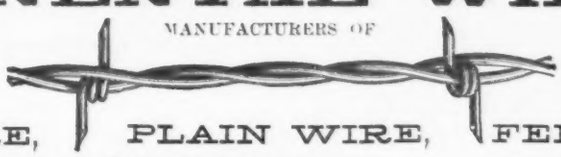

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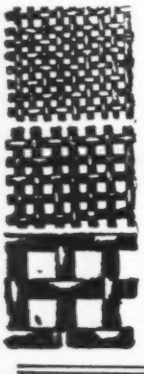

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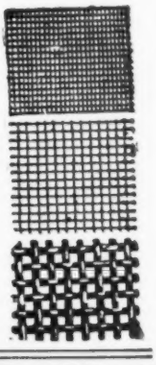

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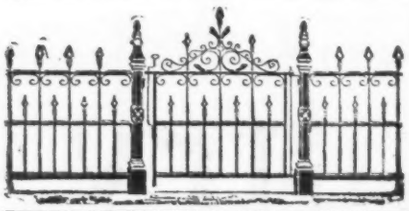

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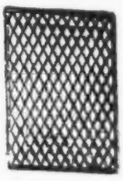

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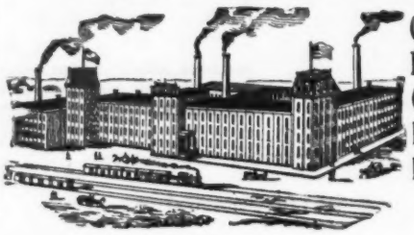

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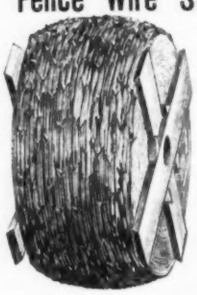

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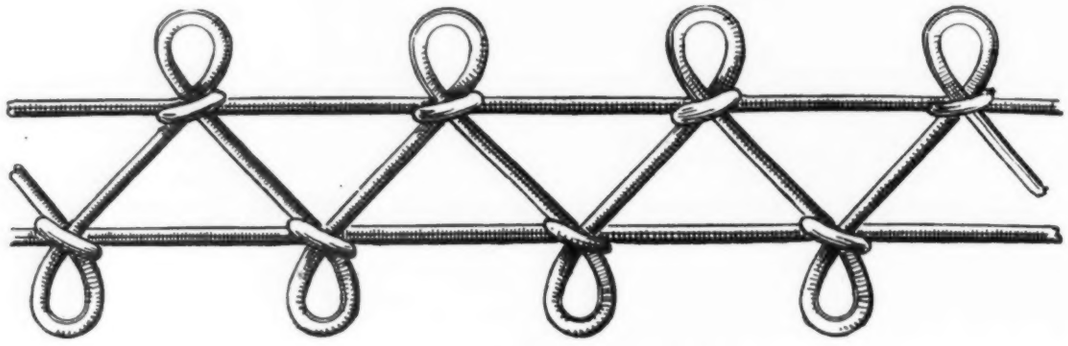

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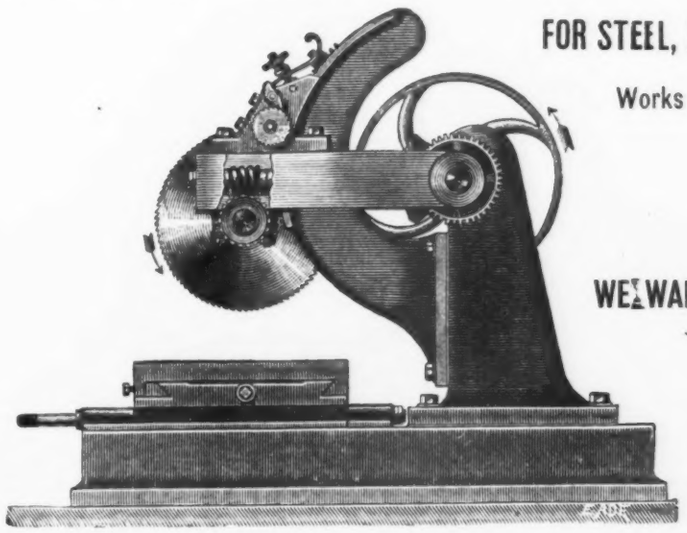

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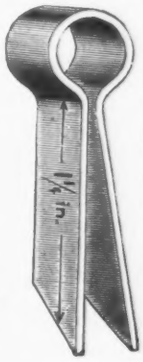

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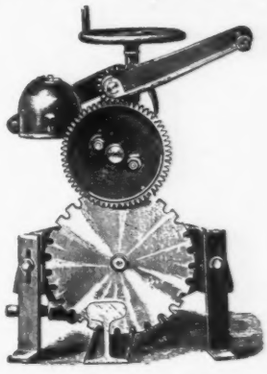

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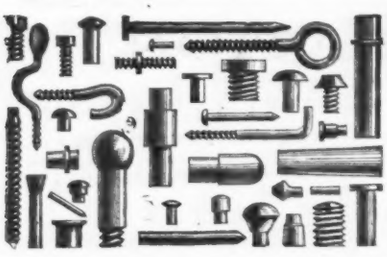

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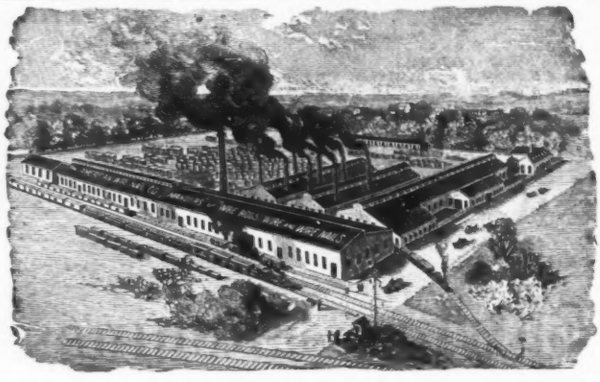

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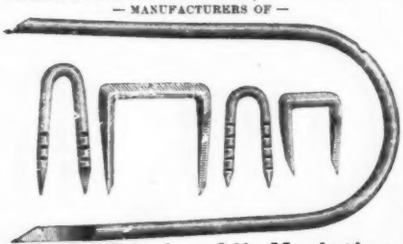

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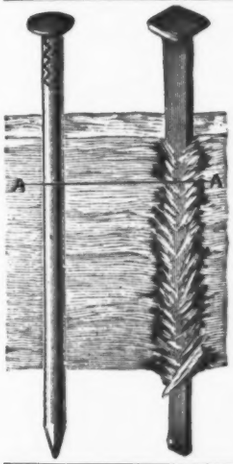

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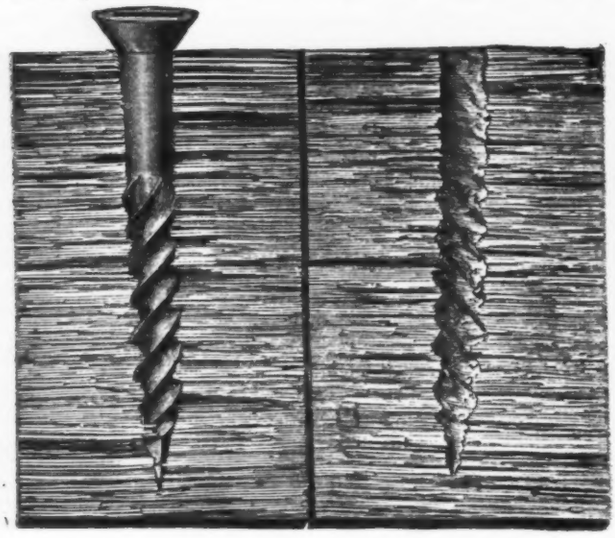

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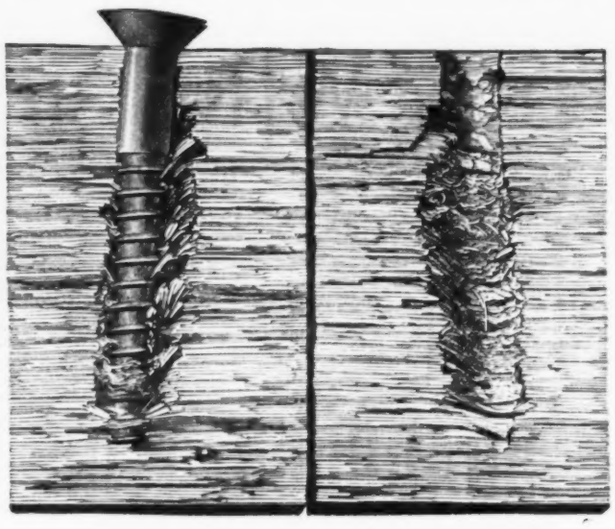

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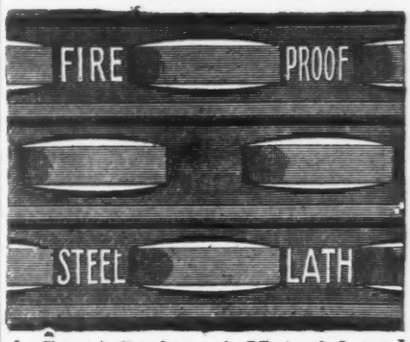

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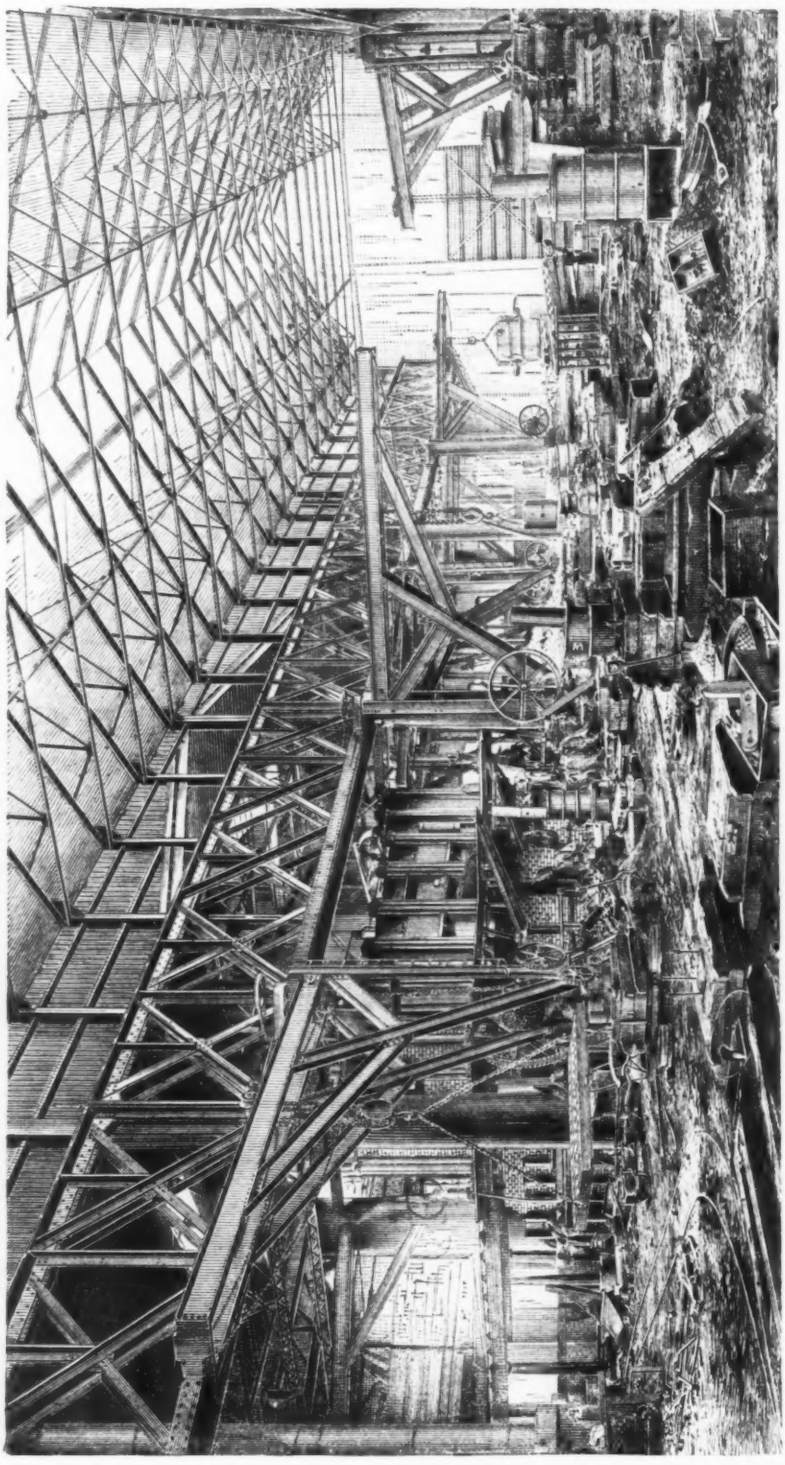

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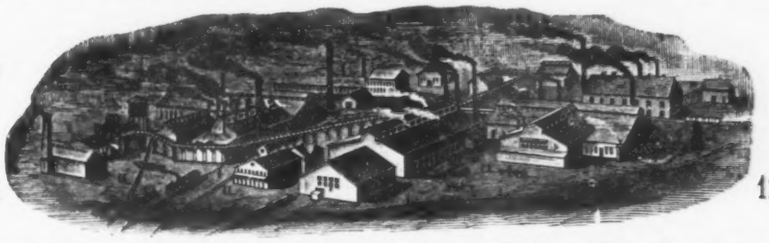

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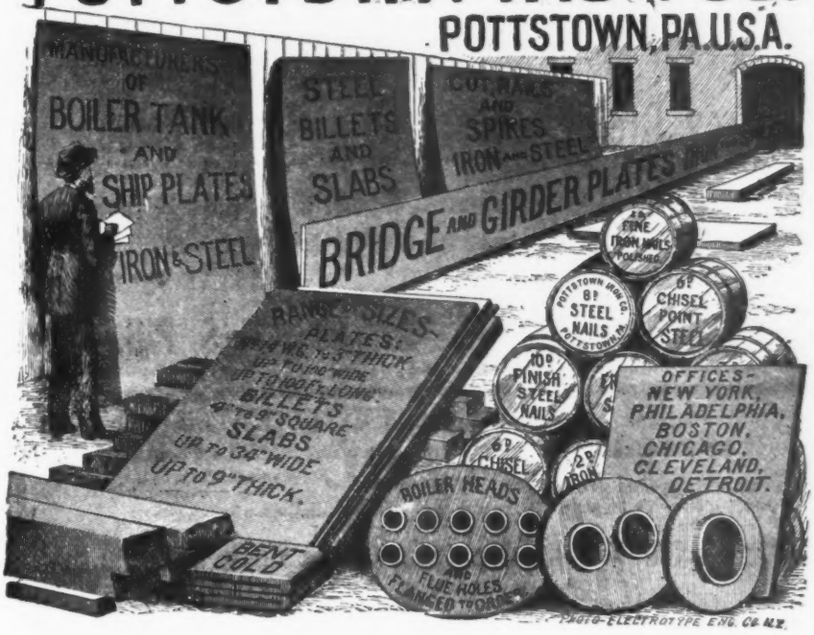

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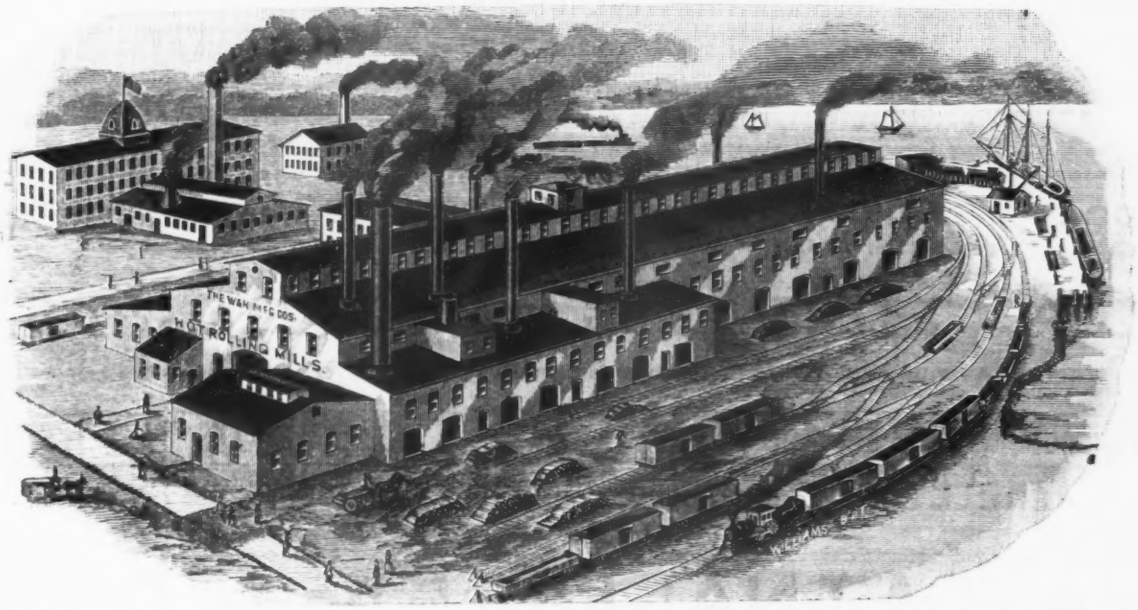

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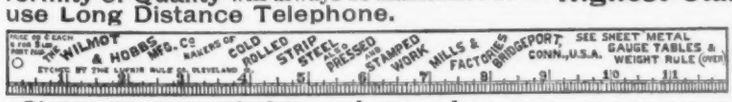

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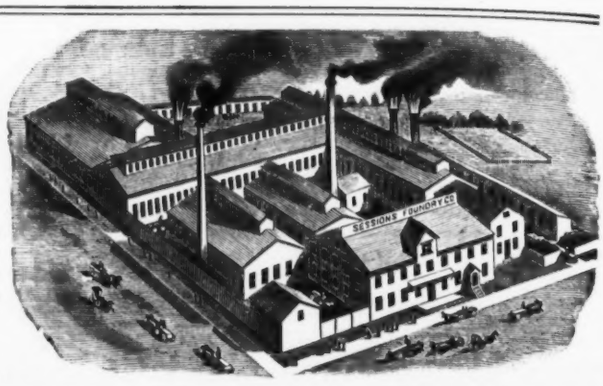

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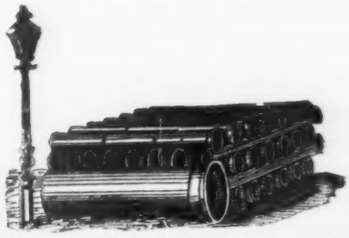

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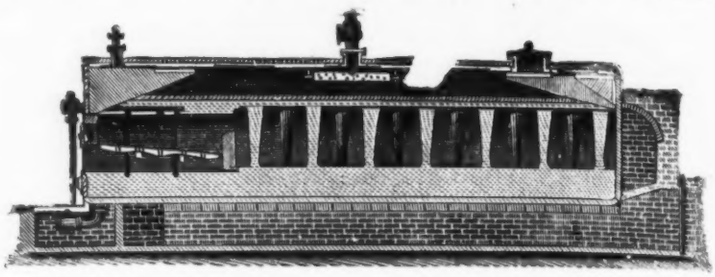

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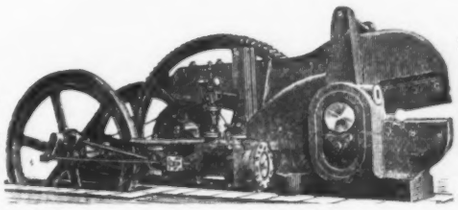

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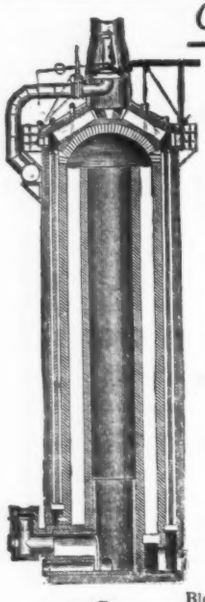

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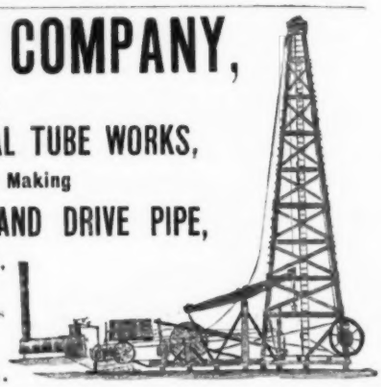

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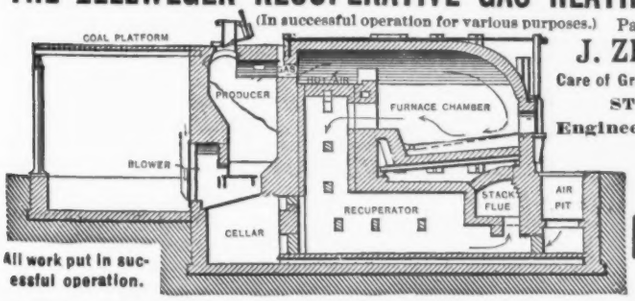

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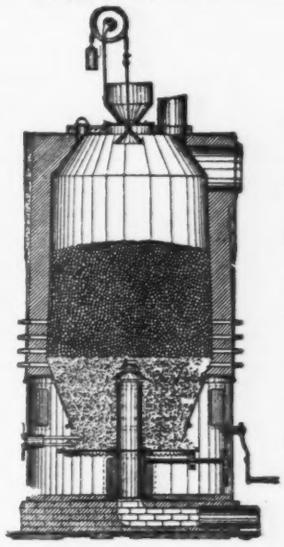

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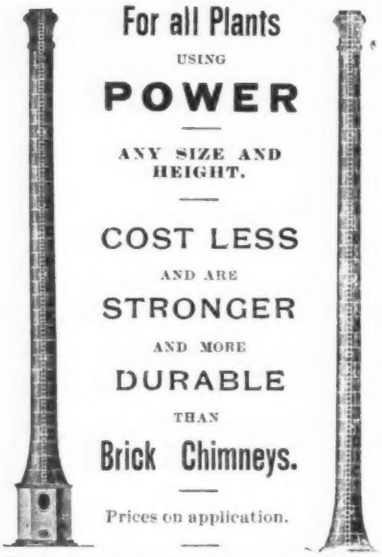

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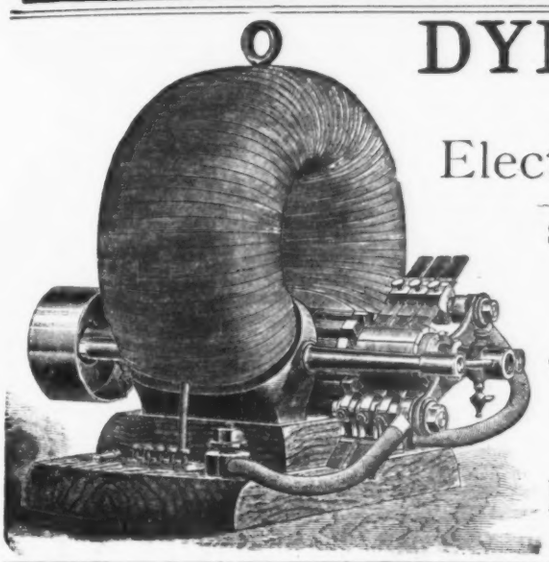

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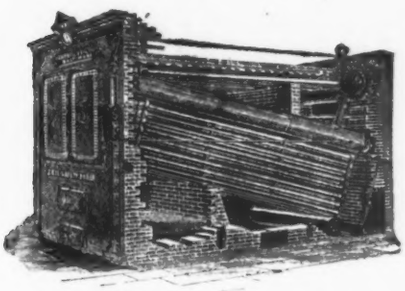

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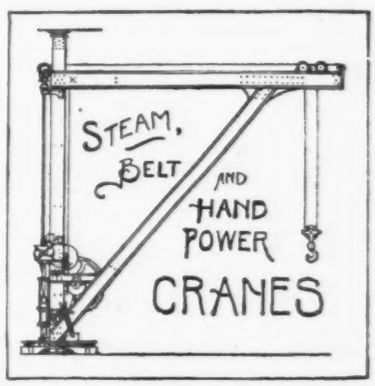

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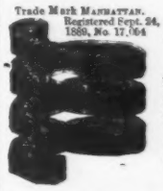

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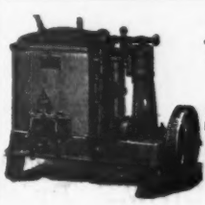

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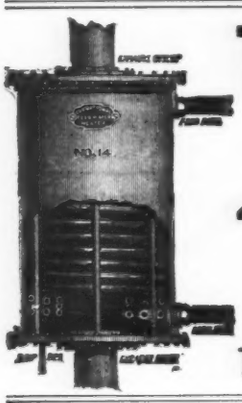

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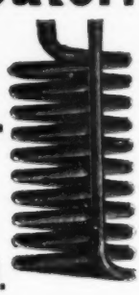

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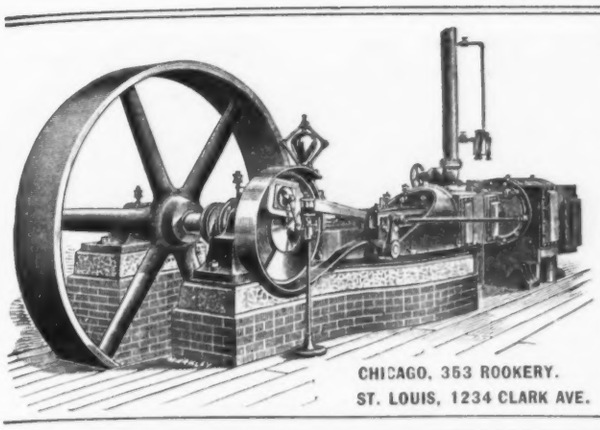

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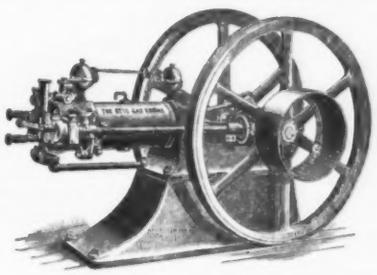

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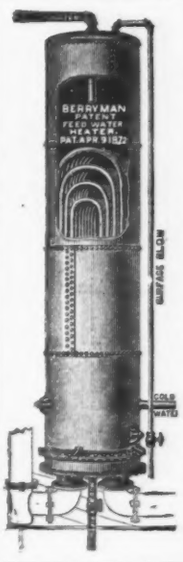

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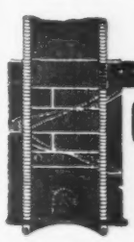

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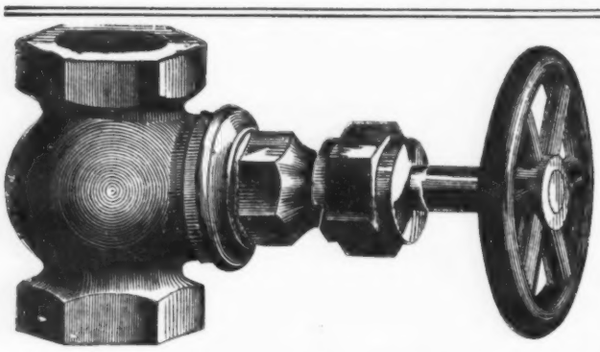

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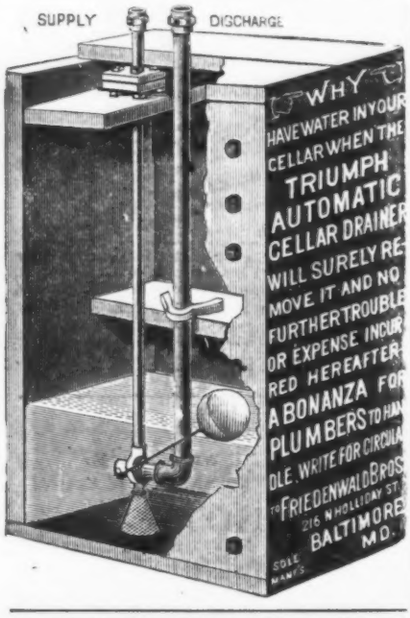

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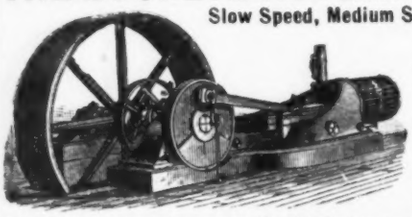

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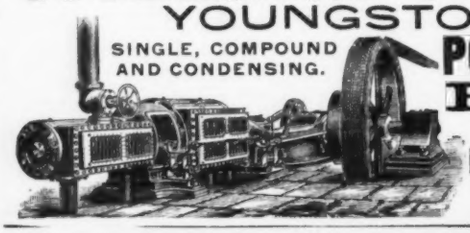

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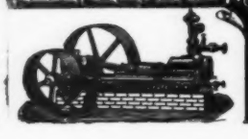

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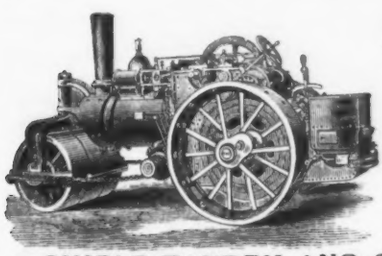

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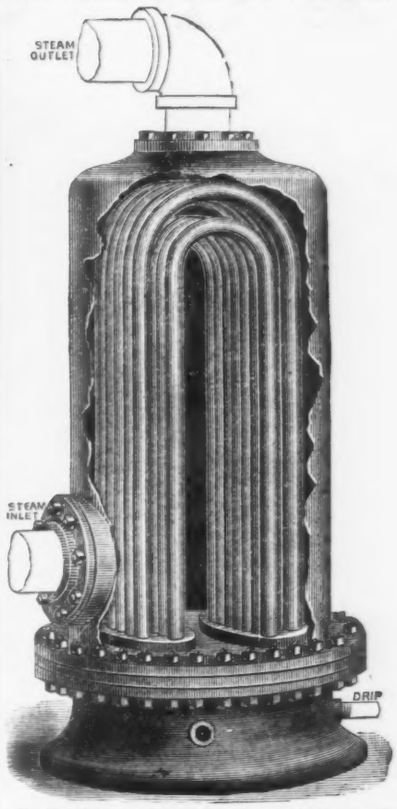

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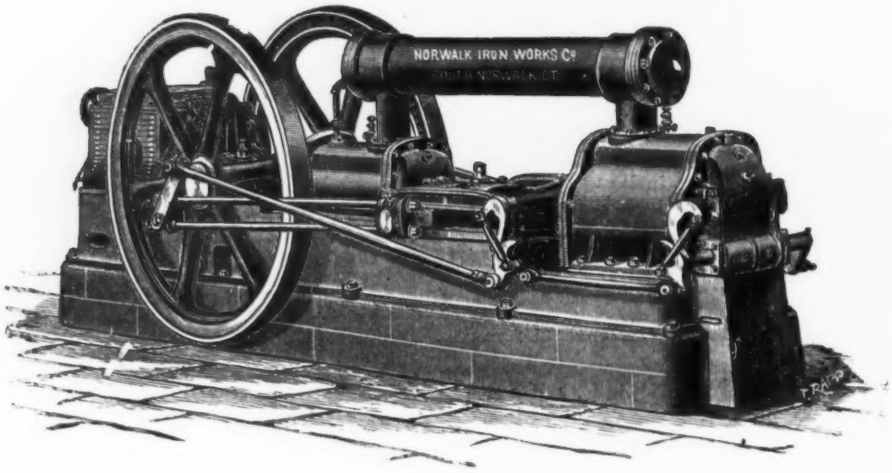

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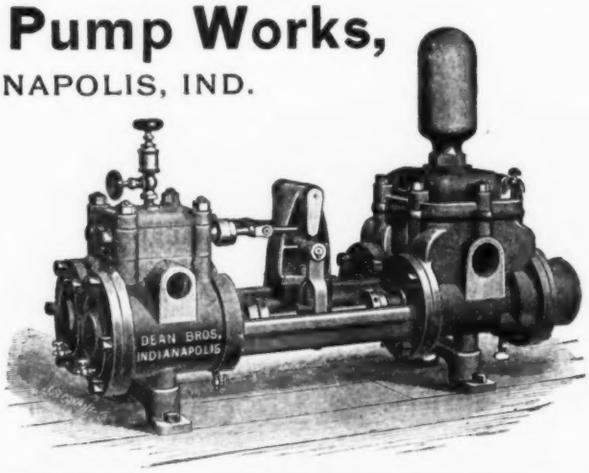

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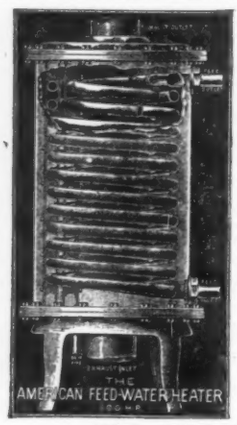

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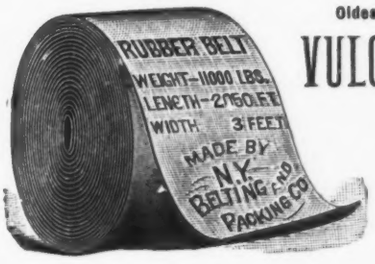

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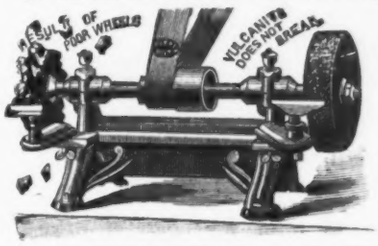

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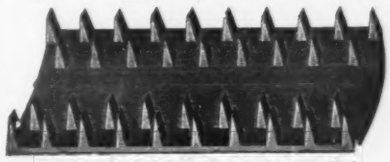

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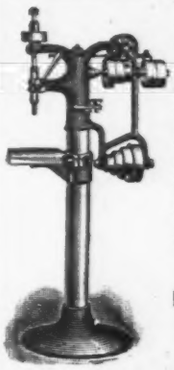

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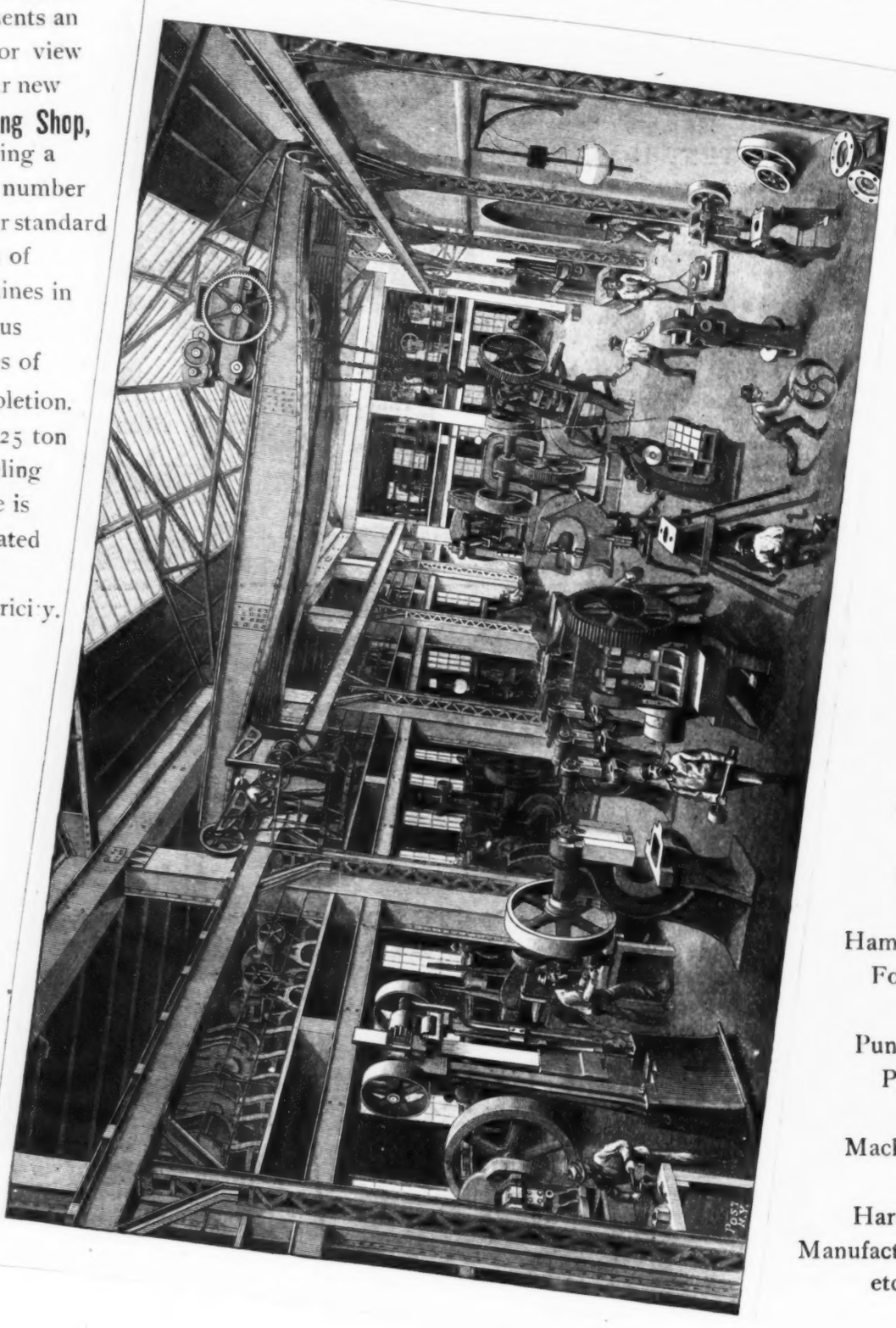

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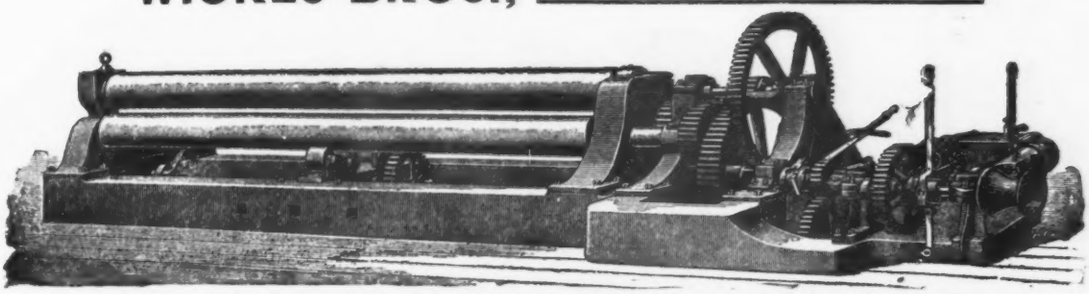

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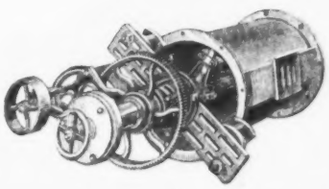

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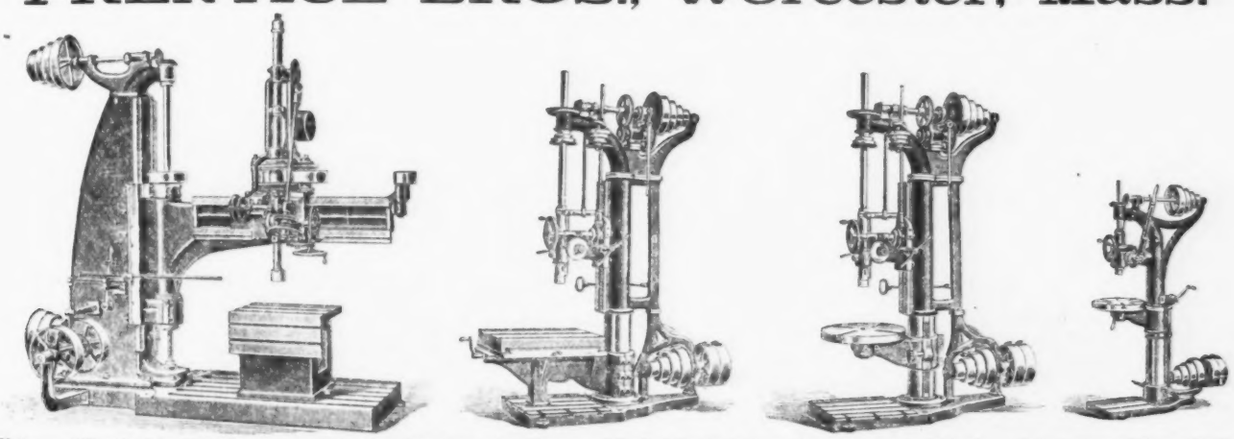

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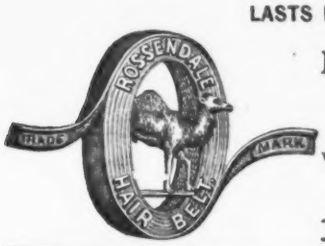

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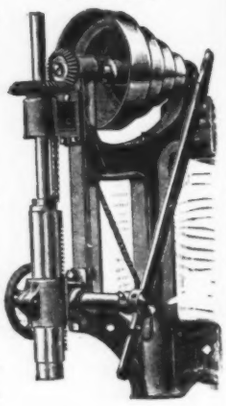

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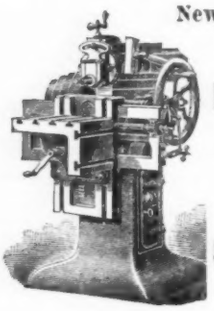

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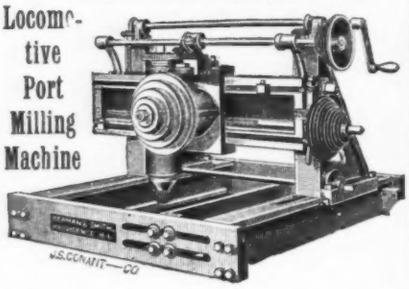

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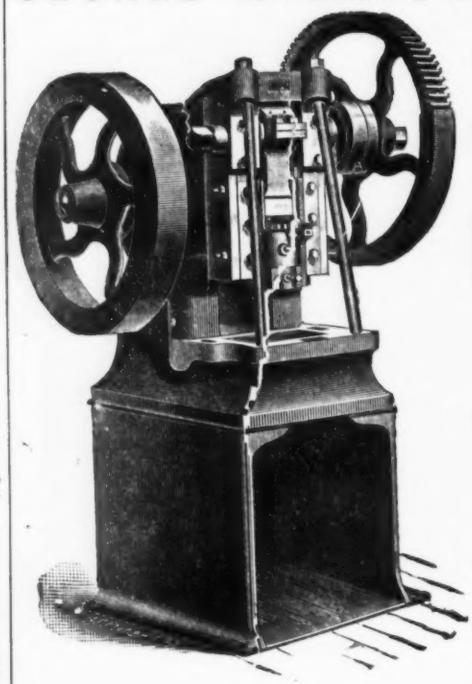

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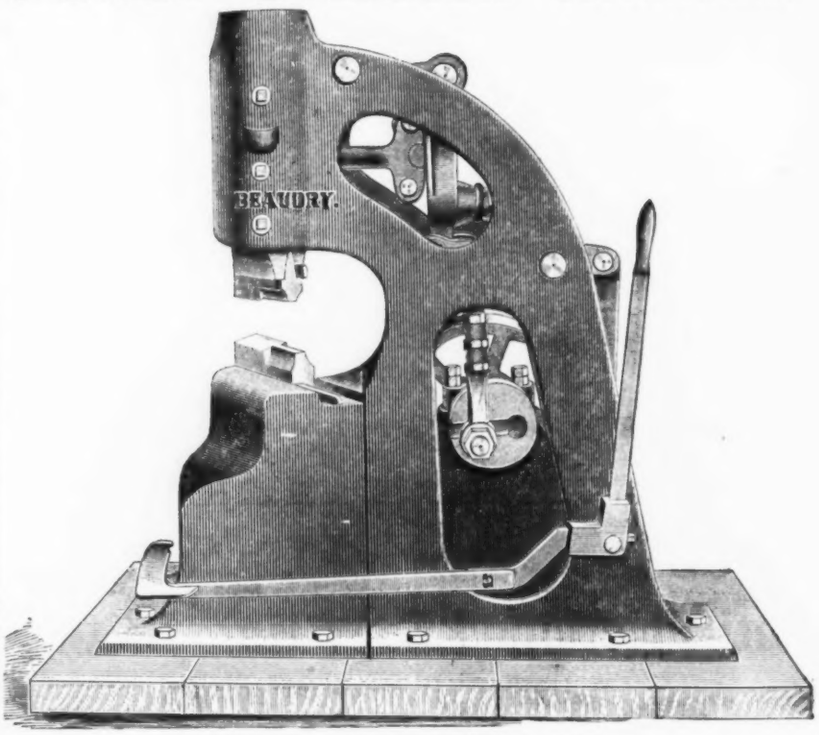

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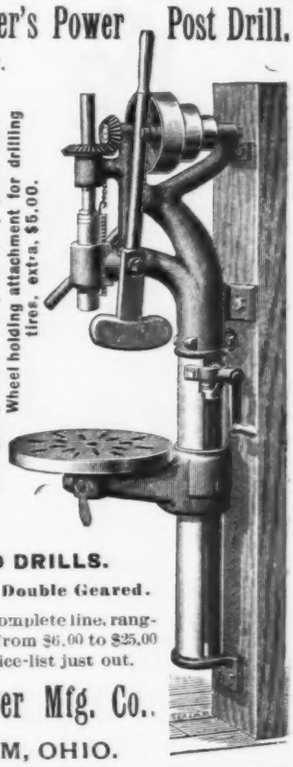

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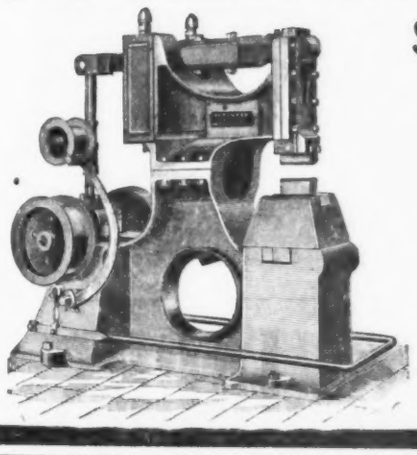

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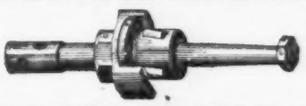

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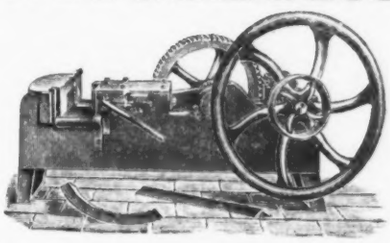

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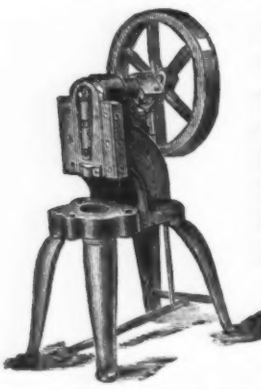

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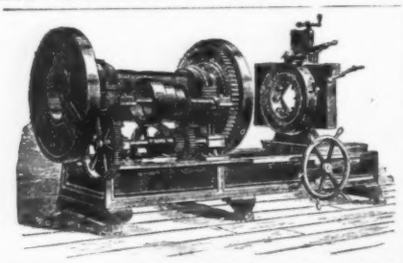

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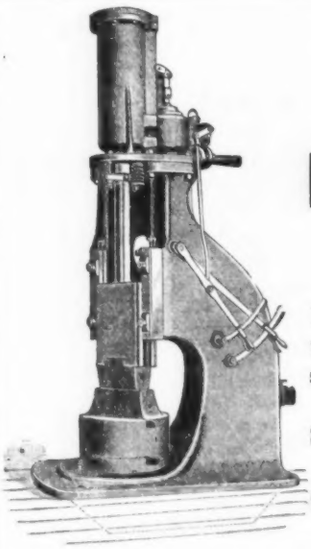

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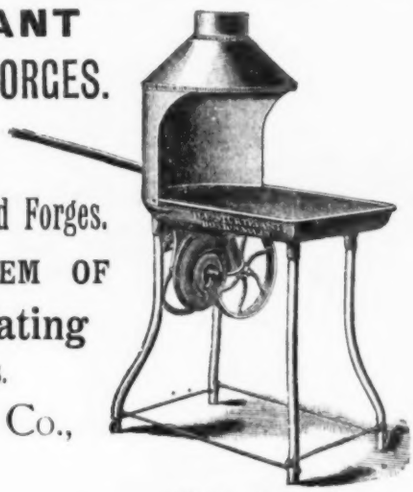

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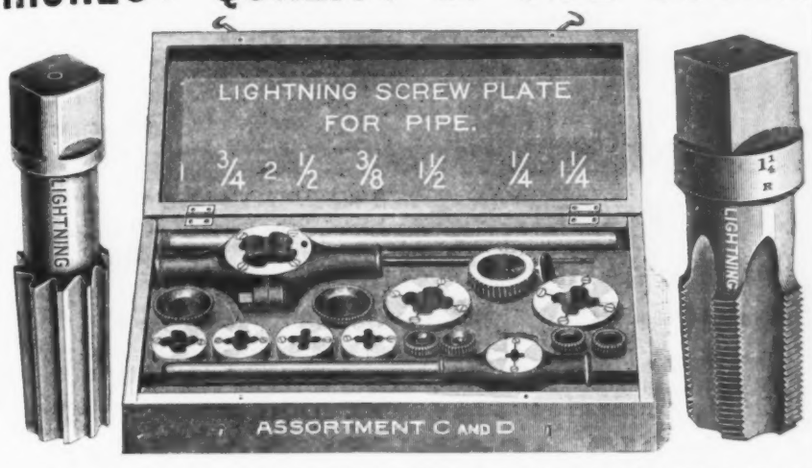

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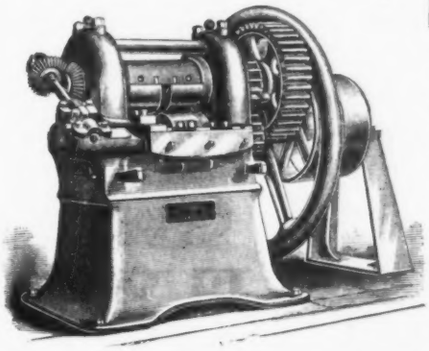

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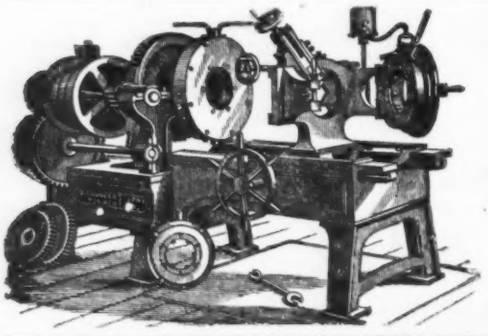

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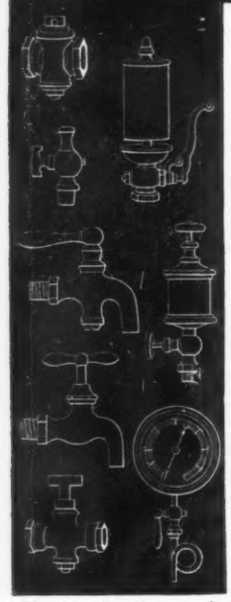

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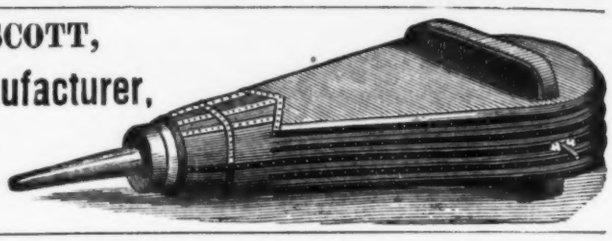

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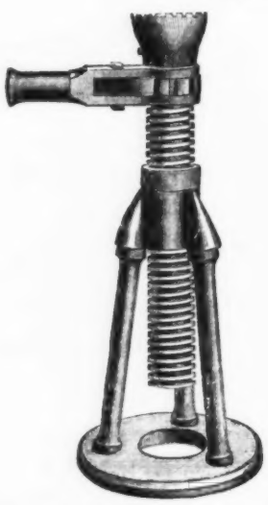

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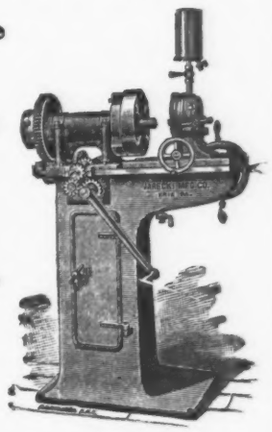

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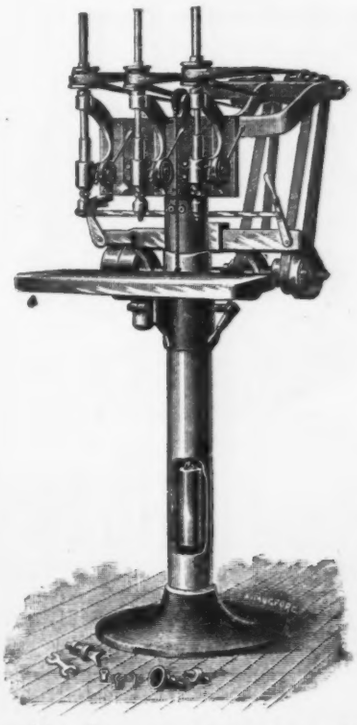

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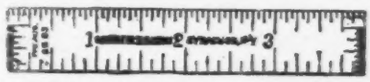

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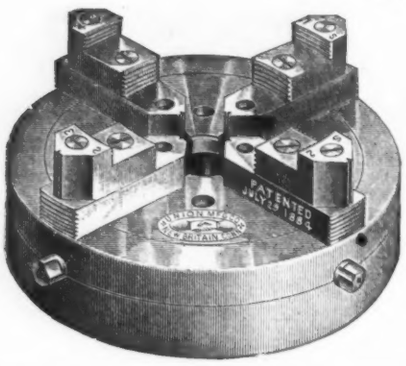

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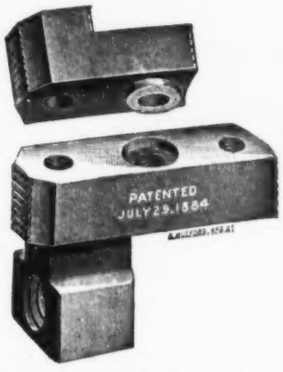

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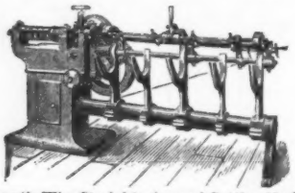

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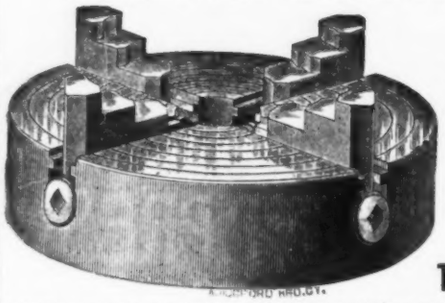

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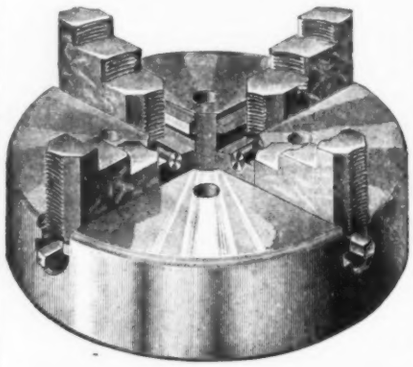

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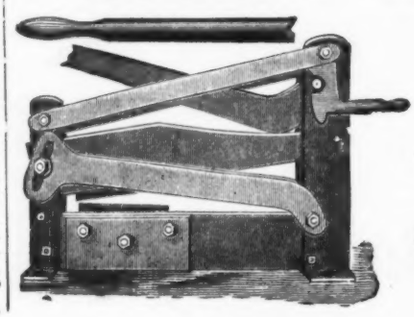

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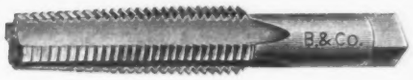

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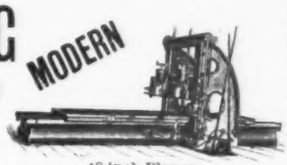

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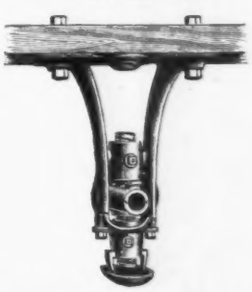

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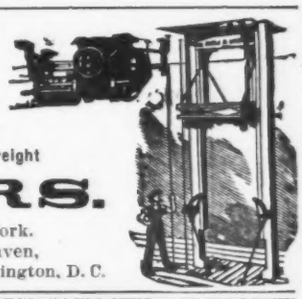

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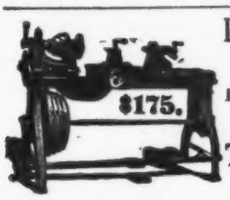

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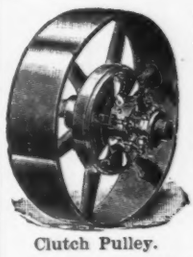

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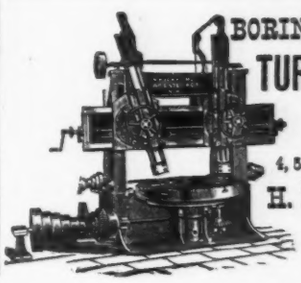

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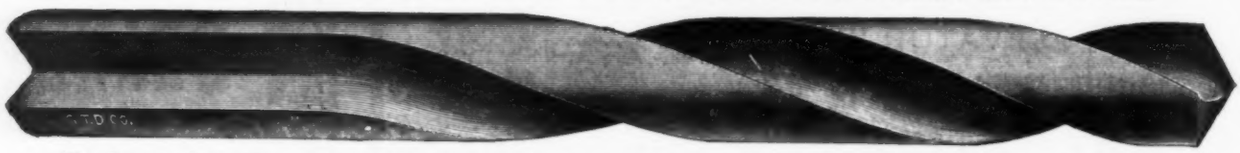

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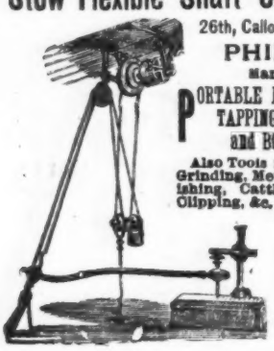

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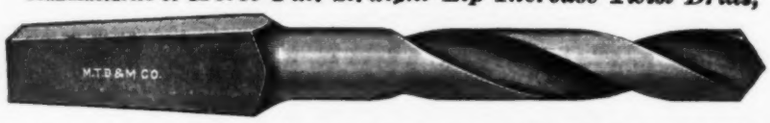

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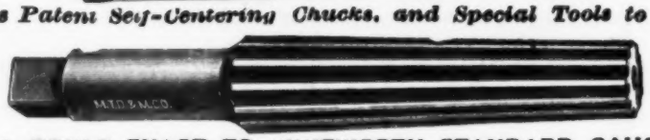

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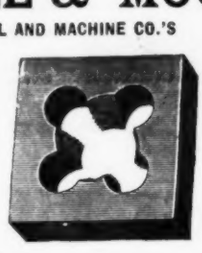

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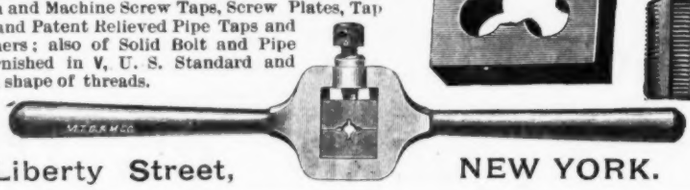

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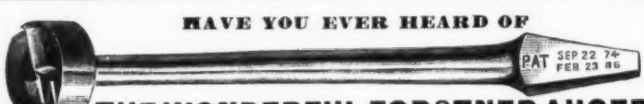

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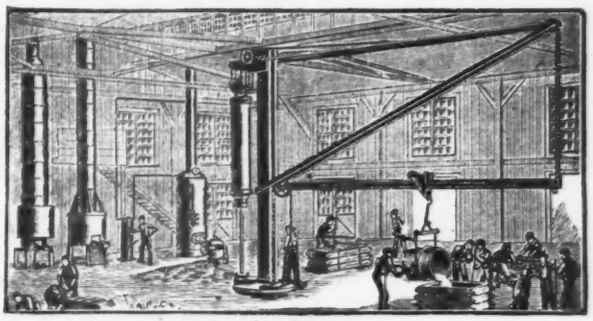

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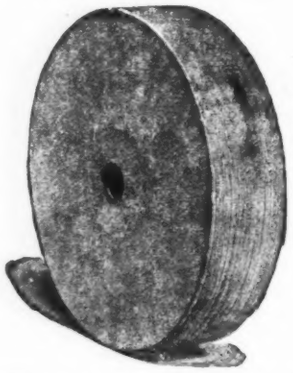

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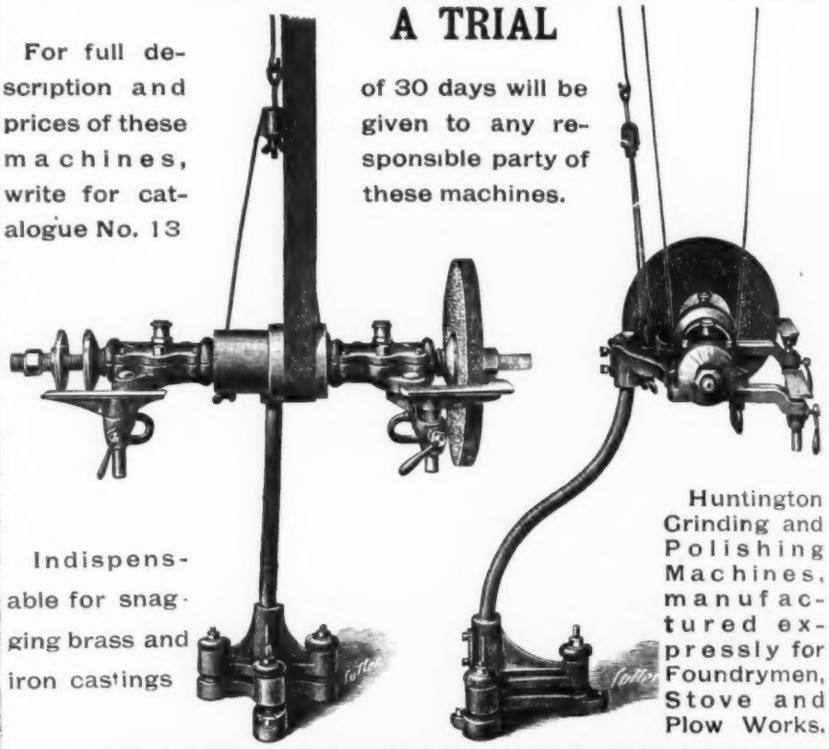

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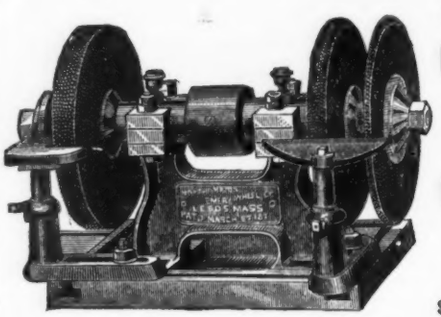

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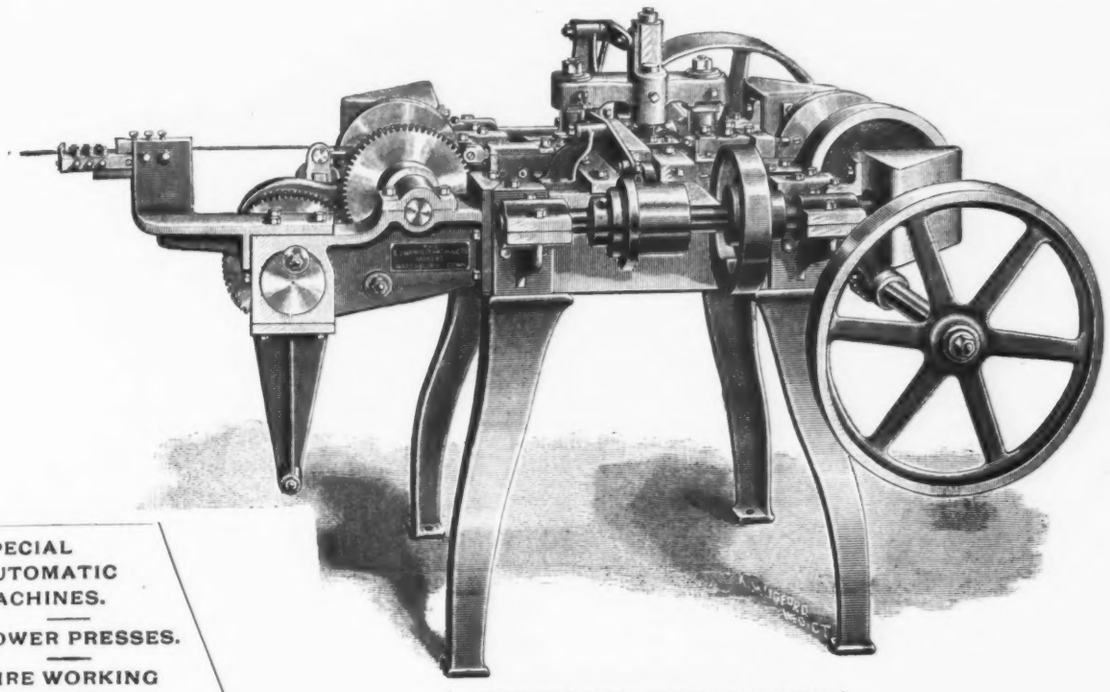

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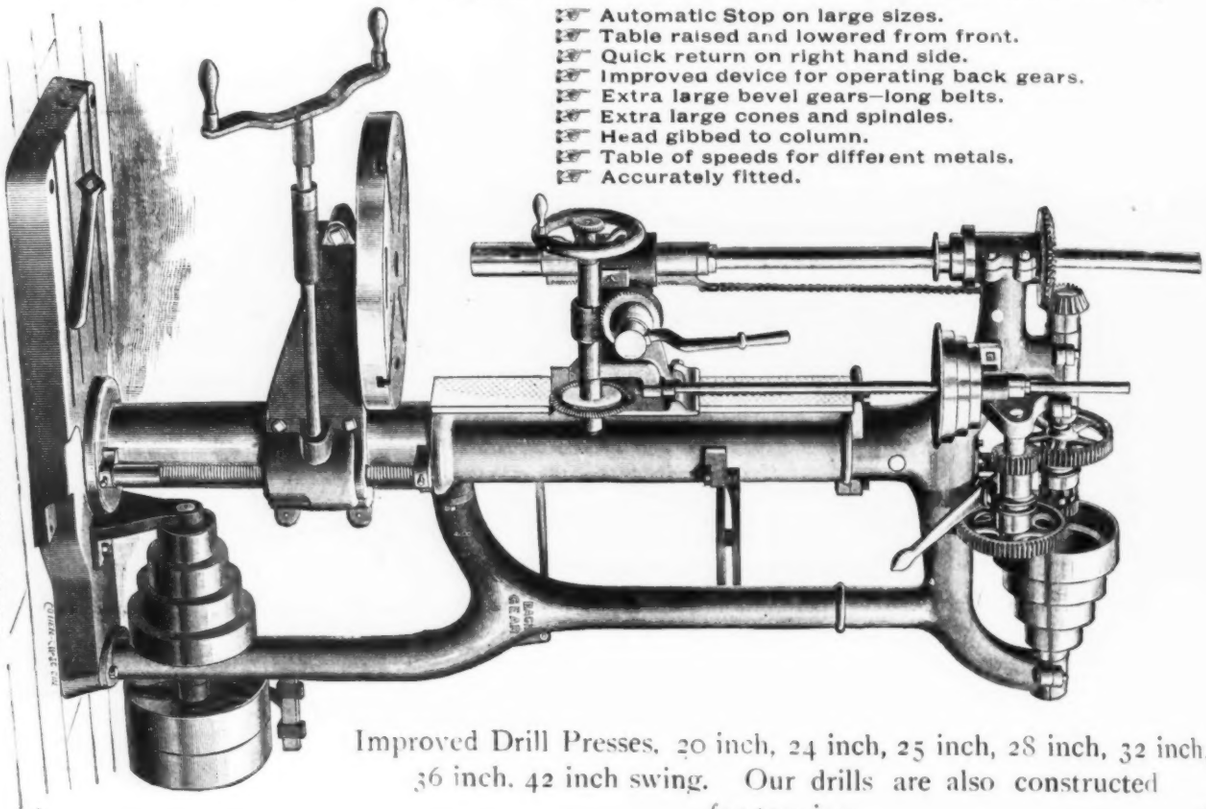

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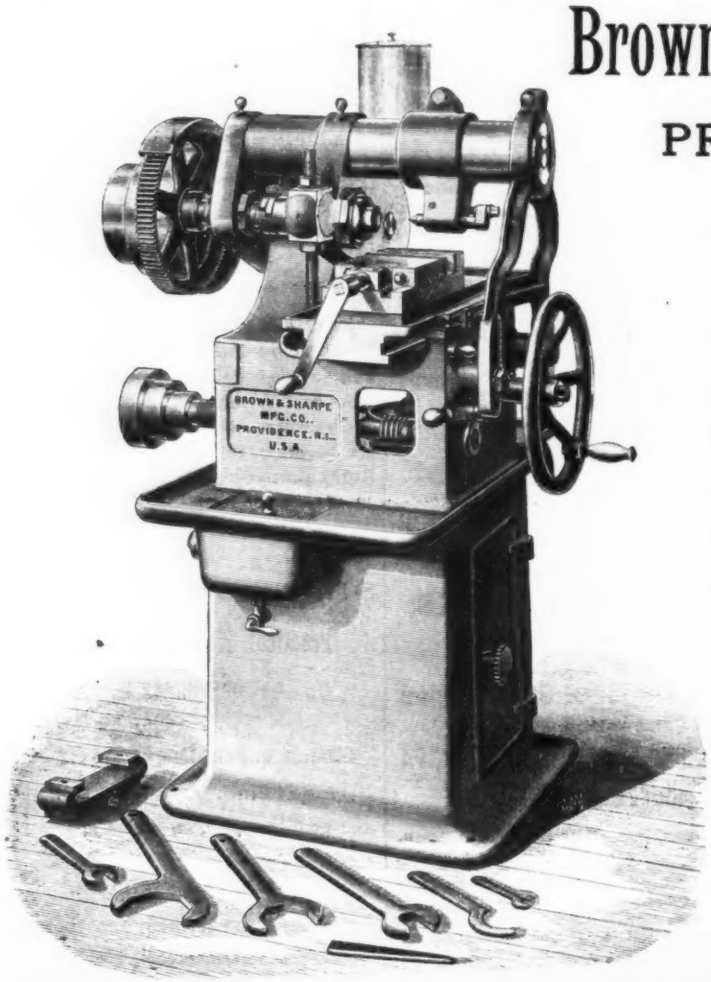

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16 in. and 20 in. Crank Shapers.
20 in., 26 in. and 28 in. Triple Geared Shapers.
24 in., x 24 in. x 6 ft. and 8 ft. Planers.
26 in. x 26 in. x 6 ft. Planers.
32 in. x 32 in. x 8 ft., 10 ft. and 12 ft. Planers, Single Head.
36 in. x 36 in. x 8 ft., 10 ft. and 12 ft. Planers, Double Head.
20 in., 24 in., 28 in. and 32 in. National Drills.
20 in., 25 in., 28 in., 32 in. and 40 in. Standard Drills.
12 in., 15 in., 18 in., 21 in. and 36 in. Turret Lathes.
12 in. and 15 in. Speed Lathes.
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16 in. x 6 ft. Square Arbor Lathes.
18 in. Cabinet Turret Lathes
18 in. and 21 in. Screw Machines.
Universal and Plain Milling Machines.
Plain and Universal Radial Drills.
Bolt Cutters.
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66 in. x 24 ft., for Facing and Boring. Low Price.
60 in. x 20 ft., Heavy Pattern. "
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1 40 H.-P. Locomotive Boiler

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Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 23 ft., triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

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Fox Monitor Lathes, 14 in. x 6 ft.; 15 in. x 6 ft.; 16 in. x 6 ft., 18 x 6.

No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
No. 3, 4, 5, 6 Power feed " "
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Crank Shapers, 6 in., 8 in., 10 in., 12 in., 15 in., 16 in., 17 in., 20 in., 24 in., 28 in., adjustable stroke.

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50 in. Single Head Boring and Turning Mill.
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Planer, modern, almost new, 34 x 30 x 8 ft.	$675.00
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1 Planer, planes 16 ft. long, 62 in. x 62 in.
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1 Engine Lathe 16 ft. bed, 25 in. swing, raised to 32 in
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1 Engine Lathe, 10 ft. bed, 24 in. swing. Old style.
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16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest
16½ in. x 6 ft. Engine Lathe, screw front, compound rest.
17 in. x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
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17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
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18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
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21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
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No. 1 Upright Drill.
No. 1 Upright Drill.
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Radial Drill, 6 ft. arm, plain top table.
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25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 60 in. x 24 ft. Planer, with two heads on cross beam.
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1 32 in. x 16 ft. Fay & Scott. Compound Rest.
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1 21 in. x 12 ft. Dexter. Compound Rest.
1 20 in. x 13 ft. Hubbard. Compound Rest.
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1 18 in. x 8 ft. Forsaith. Compound Rest.
1 17 in. x 6 ft. Forsaith. Complete.
1 16 in. x 8 ft. Dexter. Power Cross Feed.
1 16 in. x 8 ft Blaisdell. Raise and Fall Rest.
1 16 in. x 8 ft. Porter. Complete.
1 16 in. x 6 ft. Blaisdell. Raise and Fall Rest.
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1 Barnes 3 Spindle.
1 Norton & Jones 1 Spindle.
1 " " 2 Spindle.
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1 20 in. " Crank.
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2 15 in. Davis Crank.
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1 No. 4½ Garvin.
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1 each 3 and 4½ in. Davis.

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Heavy Vertical Milling Machine.
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19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 10 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
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31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
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Screw Machines.
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Lathes, 24 inch swing and larger.
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Write for Prices.

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1 24 x 24 x 7 ft. Planer.
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1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12½ x 24 " " "
1 8 x 16 " " "
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1 12 x 12 Vertical Engine.
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Vertical Boilers and Engines. Second-hand.
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1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

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One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
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Four 100 H.-P. Horizontal Tubular Boilers.
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Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.

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IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

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NEW AND SECOND-HAND, FOR SALE.

96 in. swing, 26 ft. Bed, Heads raised to swing 13 ft. A
78 in. " 17 ft. " Screw Feed. Good.
50 in. " 30 ft. " For Rolling Mill Forgings. New
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20 in. " 7½ and 8 ft. " "
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26 in. x 6 ft. "
36 in. x 10 and 12 ft. "
54 in. x 48 in. x 12 ft. " Hewes & Phillips. 2 heads.
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120 in. x 120 in. x 16 ft. " Betts, 2 heads.
100 H.-P. Westinghouse Standard Engine.
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2000 lb. Bement Steam Hammer.

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VERTICAL BLOWING ENGINE FOR SALE.

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GOOD THINGS CHEAP.

1 18 in. x 12 in. x 26 in. Cameron Pump.
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2 Locomotive Boilers, 20 and 30 H.-P.
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Lot Rock Drills, Hoisting Engines, Locomotives, Dump Cars, &c., &c.
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1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

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LONG ARM AXLE PLANT.

Patterns, Machinery and Tools. Also Wagon Box Patterns.

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Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No. 1 Wrought Iron Scrap. Correspondence solicited.

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BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5¼.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
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7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

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The above are new, not having been used, and will be sold low to close out an estate.

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3000 tons No. 1 bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

"ENGINE," Box 324,
office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE

SECOND-HAND

FEED-WATER HEATERS,

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

BENJ. F. KELLEY & SON.
Liberty St., New York.

FOR SALE.

SECOND-HAND

1 Horizontal Boring Machine, swings 69 inches over bed, 55 inches over table, 6 feet between centers; power longitudinal and cross feed.

1 Iron Planer, planes 42 in. x 42 in. x 20 feet, one head on cross beam.

The above tools of our own manufacture and never used except in our own shop; in good condition, but not large enough for our present need.

FITCHBURG MACHINE WORKS,
Fitchburg, Mass.

FOR SALE.

Large lot of Loco. Boilers,
50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

SECOND-HAND

BOILER TUBING

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
88 to 96 Mangin Street, New York.

For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address

Wm. F. Jarvis & Co.,
Detroit, Mich.

FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals

BUSSENIUS & CUNLIFFE,
1142 Washington Ave., Philadelphia.

FOR SALE.

CRANK and GEARED SHAPERS.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

FOR SALE.

Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.

THE GOULDS MFG. CO.,
Seneca Falls, N. Y.

FOR SALE.

BOILER, Locomotive style, 60 in. shell, fire box 78 in. long, 55 in. wide, 81 flues, 3½ in. diameter, 13 ft. long; total length about 23 ft., in good order, removed to put in larger.

PLANER, Iron Planer to plane 30 ft. x 46 in. width, two tool posts, modern machinery, removed to put in larger.

LOCOMOTIVE, new, 10 x 16 in. cylinders, standard gauge, Forney design, suitable for light passenger, suburban or logging service. Also narrow gauge locomotives, various sizes on hand or nearly completed.

H. K. PORTER & CO.,
Wood and 6th Ave., Pittsburgh, Pa.

FOR SALE.

One pair Howe Truck Scales, four beams, 34 feet long, weight 122,000 pounds. As good as new.

THE COLUMBUS IRON & METAL CO.,
Columbus, Ohio.

FOR SALE.

Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.
The Lodge and Davis Machine Tool Co.,
Cincinnati, Ohio.

CORLISS

Automatic Engines.

—ALSO—

ELECTRIC LIGHT, HIGH SPEED AND SLIDE VALVE ENGINES IN FIRST-CLASS CONDITION FOR IMMEDIATE DELIVERY AT VERY LOW PRICES.

Corliss Engines, one each 30 x 60, 30 x 72, 32 x 48, 26 x 48, 23 x 36, 20 x 48, 18 x 48, 16 x 42, 14 x 48, 12 x 36. Buckeye Engines, one each 11 x 20, 11 x 21, 14 x 24, 15 x 18. One pair of Woodruff & Beach Engines, automatic cut-off, 20 x 48. Slide Valve Engines, 10 x 16, 11 x 24, 8 x 8, 11 x 16, 12 x 24, 7 x 14 and 14 x16. Steel Boilers, assorted sizes, 50, 55, 60 80 and 100 H.-P., all insured for 80 pounds. 8 and 9 feet Fan Blowers, Ingersoll Rock Drills, Steam Pumps, Worthington, Blake, Cameron and Niagara. Iron Lathes, 14 in. x 5½ ft.; 7500 gallon tank and smaller sizes; Buckley and Jet Condensers; Hoisting Engines. All in good working condition. Send for catalogue.

G. M. CLAPP, Agent,
74 Cortlandt Street, New York.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

SECOND-HAND MACHINERY.

Locomotive Boiler, 6 ft. x 21 ft. (2).
Locomotive Boiler, 4 ft. x 10½ ft.
Zell Water Tube Sectional Boiler, 75 H.-P.
Horizontal Tubular Boiler, 5 ft. x 15 ft.
Horizontal Tubular Boiler, 5 ft. x 16 ft.
Horizontal Tubular Boiler 4½ ft. x 18 ft.

"Giant" Railroad Excavator and Wrecker.
Built by Vulcan Iron Works Co., of Toledo, O., Mounted on Standard Gauge Car, Capacity 2000 yards. Double Hoisting Engines 10 in. x 12 in., Single swing Engines 10 in. x 12 in., Boiler 4½ ft. x 9 ft., Water Tank 1000 gallons. Will sell or rent to responsible parties.

30 x 60 Corliss Engine,
26 x 42 Corliss Engine,
18 x 48 Corliss Engine,
24 x 42 Wright Engine,
18 x 28 Watertown and
26 x 60 Corliss Engine,
24 x 48 Corliss Engine,
12 x 36 Corliss Engine,
18 x 42 Brown Engine,
12 x 12 Ball Engine.
Send for Lists.

General Machinery.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools.
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers, 6 spindle for ⅞ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern.
2 Heaters, medium and large size.
1 No. 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.

W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 800 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small. "MINER," 331, office of *The Iron Age*, 96-102 Reade Street, New York.

FOR SALE.

One Atlas Plain Slide Valve Engine, 10 x 16, and one 42 x 12, **Boiler** to go with the Engine. Both in excellent condition. Fittings complete. At a bargain.

THE CONGDON BRAKE SHOE CO.,
1014 Monadnock Building, Chicago, Ill

Changed Weekly.

— FOR SALE. —

GAS ENGINES, 5 and 10 H.-P., new, guaranteed.
BOLT HEADERS, new improved Lewis, will make all kinds, without changing tools.
SLEDGES, 600 lbs., new, slightly seamy.
BOILER, new 50 H. P., near Philadelphia
LATHE, 60 in., New Haven make, owned by Becket Foundry & Machine Co , Arlington, N J.
TRUCK WHEELS, 500 new, 8 9 in., in stock.
DYNAMOS, 60 new, 40 to 500 light, to close out.
NUT PRESS, 1 in., 1½ in., nuts.
GAS ENGINE, 10 H.-P., Otto.
HAMMER, Dudgeon, 10 x 30, complete, 2 rams.
PLANER, new, never unboxed, arrived too late for shipment.

H. H. MANSFIELD,
126 Liberty St., New York.

SPECIAL INDUCEMENTS
—IN—
2D-HAND MACHINERY.

ENGINE LATHES.
14 in x 6 ft. Bogert, H. S., Elevating Rest, Chuck fitted. A1 condition.
15 in. x 5 ft. Blundel, Elevating Rest, 2 Chucks, fitted. Good order.
14 in. x 6 ft. Windsor, H. S., Elevating Rest, 2 Chucks Good as new.
10 in. x 5 ft. Reed, H. S., Elevating Rest, Chuck fitted. Good as new.

PLANERS.
22 in x 22 in. x 5 ft Pease, with 12 in. Chuck. Good as new
22 in. x 22 in. x 5 ft. Whitcomb, complete. Good as new.
19 in. x 17 in. x 5 ft. Whitcomb, complete. A1 condition.

DRILLS.
2 20 in. Davis, Wheel Feed, Quick Return. Good order
1 W. & R. 4 Spindle Sensitive Drill. A1 condition.
1 No. 2, 3 Spindle Garvin, Elevating Table. A1 condition.
1 No. 4, 6 Spindle Garvin, Elevating Table. A1 condition.

MISCELLANEOUS.
2 No. 1 Brown & Sharpe plain Millers, complete. A1 condition.
1 No. 1 Garvin Miller, Rack Feed, not B. G. A1 condition.
1 No. 3 Cincinnati Universal Miller, Rack Cutting attachment, lot of tools, very complete. Good as new.
1 Single Spindle Garvin Profiler. Good as new.
1 12 in. Juengst Crank Shaper, complete. A1 condition.
1 No. 2 Brown & Sharpe Screw Machine and Tools. A1 condition.
1 15 in. x 5 ft. Am. Tool & Machine Co.'s Fox Lathe, square Arbor, compound Slide Rest, complete. Good as new.

Write for list of over 350 new and second-hand Tools in stock for immediate delivery.

THE GARVIN MACHINE CO.,
Laight and Canal Sts., N. Y.

Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO
F. E. Perkins & Bro.,
59-73 West St., - Brooklyn, N. Y.

FOR SALE.

All the patterns and drawings formerly belonging to the Philadelphia Hydraulic Works, including a great variety of patterns for steam and power pumps, boring mills, drill presses, steam hammers, and steam engines, will be sold at a great sacrifice. Address
E. W. DWIGHT,
407 Library Street, Philadelphia.

CAPITAL WANTED.
To manufacture and introduce a **WIRE NAIL MACHINE** of superior merit as regards construction and small cost of operation and repair. Fully covered by U. S. Patents. Three sizes of machine in successful use, capacity of production exceeding any machine now in operation. Will sell patent and machines outright or go into a stock company to manufacture machines for sale or use. Address
"WIRE NAILS,"
P. O. Box 1086, Philadelphia.

STEEL RAILS.

We offer 100 tons second-hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).
H. V. L. MEIGS & CO.,
136-138 So. 4th St., Philadelphia.

FOR SALE. WELL EQUIPPED
Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address
P. O. BOX 1119, New York.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address
T. C. KERRICK,
Bloomington, Ill.

SPECIAL TO MANUFACTURERS !!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations. 170 x 400 feet; N. Y. C. R. R. switch full length of property. I will advance one-half money necessary for erection of permanent buildings.
E. G. FELTHOUSEN, Room 42,
534 Main St., Buffalo, N. Y.

FOR SALE.

A lot of 16, 30 and 60 lb. T-Rails, fit to relay; Old Telegraph Wire, one cent per lb., f.o.b. cars; Valentine Self-Dumping Cars, 5 and 2 cubic yards capacity, dump tubs; a lot of Broad and Narrow Gauge Locomotives; Wire Rope; also a lot of 6 inch Cast Iron Flange Pipe, &c., cheap. Address
THOMPSON C. GILL & CO.,
212 S. Third St., Philadelphia, Pa.

Please Notice.

For sale at a sacrifice for immediate removal, Double deck tubular boilers, diffusion battery, Fairbank's track scale, nearly new; piping; old boilers 8 ft. x 20 ft., suitable for tanks.
MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

To Manufacturers Requiring Railway and Water Communication
FOR SALE.

MANUFACTURING PLANT

Within 45 minutes from the City Hall.
Consisting of

Foundry, Machine, Blacksmith and Carpenter Shops.

All built of brick with slate roof, covering 45,000 square feet of ground, with Corliss Engine of 250 horse-power, &c., &c., together with numerous Sheds, Stables, &c.
About 12 acres of land, stone filled dock on River, etc.
For particulars, apply to
S. DE WALLTEARSS,
171 Broadway, - - NEW YORK.

AUGER AND BIT FACTORY FOR SALE.

We offer for sale at a very low price our manufacturing business, located in the beautiful and growing village of Centerbrook, in the town of Essex, State of Connecticut. It has one of the best water-powers in the State. Good buildings, well fitted-up with special tools and machines for making Jennings' Bits, Expansive Bits and all other wood boring tools. With a capacity for employing from 50 to 75 men.
CONN. VALLEY MFG. CO.,
Centerbrook, Conn.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.
For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to
JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

Wanted, Manufacturers.
FREE SITE, CASH BONUS.

To reliable manufacturing concerns who wish to change locations or start new ones. We have several desirable locations for *Rolling Mills, Nail Factories, Glass Works, Hardware Mfg. Plants*, in fact almost every line of manufacturing, in the cities and towns of the *Middle, Northwestern, Southwestern* and *Western States; substantial inducements to the right parties* We are *not bound* to *any locality* and will give *unbiased information* on application.
Write for proposition blank.
AMERICAN LOCATING CO.
(INCORPORATED),
41 & 41A Nat. Ger. Am. Bank Bldg.,
St. Paul, Minn.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.
CHARLES A. HOADLEY,
Corresponding Secretary.

FOR SALE.

STANHOPE FURNACE, with 138 acres of farm land, houses, &c. A large creek of pure water runs through the place. On line of S. & T. R. R. three miles from Pinegrove, Pa. For further particulars, address
F. L. COOCH,
BESSIE C. FOX,
Pottsville, Pa. Administrators.

SITE WANTED. Any town or city desiring a manufacturing plant which will yield much trade to the dealers, both direct and through its employees, will do well to address "CLINTON," office of *The Iron Age*, 96-102 Reade St., N. Y.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST. PAUL, DULUTH, &c., with lowest freight rates to and from all points. ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT, CHAMBER OF COMMERCE BLDG, CHICAGO, OR THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at car-load prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,

Suburban Traffic Agt., 317 BROADWAY, N. Y.

FACTORY ROOMS WITH POWER.

Three large halls each 50 x 225. Two halls 7000 square feet each. Steam power and heat. City water, gas, cheap freighting, easy traction, steam freight elevator.

SHETHAR FACTORY, Elm Street, Yonkers, N. Y. Apply on premises, or to

T. ASTLEY ATKINS,
140 Nassau St., N. Y. City.

FACTORY FOR - SALE - CHEAP.

In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft. x 100 ft., with 30 H.-P. Engine and Boiler and 90 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

TOWNSEND WANDELL,

51 Chambers St., New York City.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

WANTED.

A MANAGER FOR LAKE SUPERIOR CHARCOAL FURNACE.

One competent to take entire charge of plant. Address, with references,

A. Howard Hinkle,
Cincinnati, Ohio.

W. H. Hinkle,
Minneapolis, Minn.

FOR SALE.—Hollidaysburg Foundry and Machine Shop. The subscriber will offer at Public Auction on the premises at Hollidaysburg, Blair County, Penna., Thursday, June 2d, 1892, At 2 o'clock P. M., THE HOLLIDAYSBURG FOUNDRY AND MACHINE SHOP, consisting of a three story brick Machine Shop, about 30 x 120 feet, and Brick Foundry with slate roof, about 60 x 130 feet. Machine Shop has a number of first-class tools, others in fair condition. Portion of building devoted to office, store room, blacksmith shop and fireproof pattern store room, containing a large number of valuable patterns of existing mechanical appliances now in daily use in surrounding manufacturing industries. The foundry is fully equipped with crane cupola and furnace, core oven, ladles, flasks and weights. The Pennsylvania Railroad passes in front of the property, while large manufacturing industries in the vicinity will afford a good local trade. The plant is ready for immediate operations. Terms, $500 cash on day of sale, balance in equal payments in two and three years, with interest secured by mortgage on property. MRS. A. M. BAYLEY.

FOR SALE.

The Baxter Stove Works of Birmingham, Ala. Plant in excellent condition; long established business; annual sales $100,000; terms easy; rare opportunity. For particulars address

AMERICAN NATIONAL BANK,
Birmingham, Ala.

FOR SALE.

The Entire Plant of the ALEX. K. RARIG CO., Engineers, contractors, founders, machinists and boilermakers.

BUENA VISTA, VA., JUNE 16, 1892.

AT PUBLIC AUCTION.

IF INTERESTED WRITE FOR PARTICULARS.

J. E. MULLEN, Trustee.

WANTED.

Western Rolling Mill, Nail Works or **other Manufacturers in Iron** or **Steel** to lease exclusive territory, for the manufacture and sale of a specialty in which there is a large profit. Demand unlimited. For particulars, address

"FRANKLIN,"
office of *The Iron Age*, 220 So. 4th St., Phila.

HARDWARE STOCK FOR SALE CHEAP.

The stock of goods in the old hardware stand at Waverly, N. Y., is offered for sale. The stock is reduced to low amount and is clean. The stand has had a large trade for upwards of 40 years and is well and favorably known for miles around. Building is very convenient and has the modern improvements, including large power elevator. This opening presents an opportunity to start up with a fresh stock, or to move an old stock from a crowded locality to this desirable point. Three railroad trunk lines pass through Waverly. Address

H. G. MERRIAM,
Waverly, Tioga Co., New York.

FOR SALE.

RARE OPPORTUNITY FOR THE RIGHT MAN.

Owing to the death of Edward Heath, Treasurer of the Malden Hardware Co., Malden, Mass., a city of 25,000 inhabitants, situated 4 miles from Boston, the stock, fixtures, tools and teams of the company are offered for sale. Stock will invoice about $10,000. Must be sold on or before June 1, 1892, to close estate. Apply to

CHARLES HEATH, President,
on the premises.

FOR SALE.

A thoroughly well assorted stock of Shelf Hardware, House Furnishings, Stoves, &c., located in a growing and thriving Illinois town of 25,000 inhabitants; stock $8,000 to $10,000. The town is noted for its manufactures and is surrounded by the finest agricultural lands in the State. The business well established and thriving. Address "LIGHT,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

BUSINESS FOR SALE.—A thoroughly established manufacturing business in the metal line. Goods well known and selling to the best wholesale trade. This business is now paying, but present owners have other business to which must be given all their time and capital. Thoroughly competent practical man will stay with it if desired. About $15,000 required. Good chance for some town desiring manufacturing plant, as it can be easily removed. "LAFAYETTE," office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish (no trade for real estate). For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

—: A :—

MANUFACTURING PROPERTY.

Splendidly located in a thriving Western City, lying adjoining main line of prominent railway. Every convenience of receiving and shipping over five railways; favorable freights, and floor space exceeding 100,000 feet. Sufficient extra land for additions. Running full with capacity of 150 H.-P. Would sell the whole with a business well-established for many years, or would form an association with good party for the manufacture of goods adapted more to spring and summer trade, the opposite of present output of fall and winter goods. We consider this an opportunity rarely offered. Would take half interest in a satisfactory connection with agricultural goods or similar class. Good reasons will be given for making this proposition. This party would be pleased to share the management of the business with an equal partner or retire the whole care of it if the association proves satisfactory.

"X. O. F.,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

To communicate with the owners of a modern Coke Blast Furnace, who are open to a proposition to move it to the best location in the country,

"COKE BLAST FURNACE,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

By a firm having connection with ironmongers, builders, architects, hotels and workshops, &c., an agency for England, Scotland and Ireland for a good and salable article or articles; one which has been sold in the English market preferred. Apply

"Acme" Door Check and General Machine Company,
48 Lees Road, Oldham, near Manchester, England.

Business Chance.

Good complete Retail Hardware Stock for sale in city of New Haven, Conn., one of the best localities in the State for the business. Value of stock $15,000 to $20,000. Inquire "CONNECTICUT," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

OGDEN, UTAH,

Offers the best location on Earth and $100,000 for an iron works; $50,000 for a reduction works for silver-lead ores; $50,000 for stock yards; $25,000 for woolen mills; $10,000 for a paper mill; $5000 for a pottery; $5000 for a tannery; $5000 for glass works.

—OGDEN—

Has Natural Gas, Mountains of Coal and plenty of Iron and NERVE. We mean business. No dead-heads or adventurers need apply.

SECY. CHAMBER OF COMMERCE,
Ogden, Utah.

MALLEABLE IRON PLANT
FOR SALE or TO LET.
Best Location in Albany, N. Y.
Suitable for any Iron Manufacturing Business.
1 Air Furnace. - 2 Cupolas. - 3 Kilns.

The property of the Capital City Malleable Iron Co. (now occupied by the Troy Malleable Iron Co., whose lease expires October 1, 1892). Substantial five story brick building with high trussed roof, building attached covering entire block bounded by Fourth avenue, Broadway, Church and Vine streets, and one-half block adjacent property, with stable, coal sheds, &c.

Two hundred feet from dock, with West Shore and D. and H. Railroad track alongside of building. Fitted out with first-class steel boiler, engine, shafting and Otis steam elevator. Buildings in excellent repair and machinery in the best running order. Apply to DAVID F. SKINNER, President 199 Broadway, or E. C. SKINNER, Secretary, on the premises.

RELAYING RAILS
FOR SALE CHEAP.

Rails for relaying, in good condition.

200	tons	52 lb.	Steel	Johnstown	Girders.
300	"	40 lb.	"	T	Rails with Splices.
350	"	35 lb.	"	T	" " "
100	"	20 lb.	"	T	" " "
220	"	35 lb.	Iron	T	" " "
100	"	25 lb.	"	T	" " "

I am also in the market to buy or sell any weight second-hand rails and scrap.

L. K. HIRSCH,
549 Rookery, Chicago, Ill.

FOR SALE.

Sealed proposals will be received until noon of June 15, 1892, by W. F. Kyle, Manager for the Truetees of the Fieldhouse & Dutcher Mfg Co., 30 & 32 West Monroe St., Chicago, Ill., for the sale of the entire property of said Company, including accounts; or for the sale of the merchandise, machinery and fixtures, in whole or in part.

The amount of sales in 1890 and 1891, combined, exceeded $800,000. The business shows a considerable capital over liabilities.

The Trustees reserve the right to reject any or all proposals. The books, accounts, merchandise and other property will be exhibited to any responsible persons who may wish to submit proposals for purchase. Blank forms will be furnished for proposals. Proposals may be sent to Mr. W. F. Kyle at the above address, and will be forwarded to the Trustees at New York for acceptance or rejection by June 20.

The Trustees of
FIELDHOUSE & DUTCHER MFG. CO.

FOR SALE.

30 tons 40 lb. second hand Steel Rails, as good as new, also a 35 ton 6 wheel saddle tank engine in good order. Apply

E. H. WILSON & CO.,
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EMBRACES THE NAMES OF OVER
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I AM advertising for and also by personal correspondence reaching every manufacturer of "SPECIALTIES" in the country—light salable articles that you can carry as "SIDE LINE," so that I expect to have at all times several good sellers that you may have your choice of. Send me your permanent address and I will write you full particulars of any new and desirable seller that I may have. You know there are many such continually coming to the front which it does not pay the manufacturer to put men on the road with. Just where to get the right men, and how, is a question with them many times. Of course most of these things pay commission, but I know of several parties who are paying stated salaries to good men to help introduce their goods. It won't cost you but TWO CENTS to give me your address, together with territory covered, line you are selling, and any other points that may be of interest. Your communications would be treated at all times as strictly confidential.

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I am after "SPECIALTIES" of all kinds, particularly small light articles that can be carried by traveling men as a "SIDE LINE," and am prepared at all times to place such goods upon the market in the hands of good men who will give them a share of their labor and attention. I also "CIRCULAR" the trade where desired, reaching the best class of Hardware trade in the entire UNITED STATES, or any State or combination of States. MAIL me sample of your article to be sold, write me *full* particulars in regard to *prices, terms,* freight, territory to be covered or exempt, &c., &c., your ideas as to seller's recompense, commission or salary, and how much in either case. Yours will have careful consideration and prompt reply.
Save my Address, for reference.

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Something to Manufacture.

A New England concern having more room and power than is required in their business, wish to add another branch of manufacture; the advertisers are now making spring steel wire and springs of all kinds and have power presses, polishing machinery and a well equipped small machine shop; something connected with this line and requiring such a plant is desired. "A. B.,"
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Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

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Set of Tinner's tools, lot of Hardware Boxes, Wrought Iron Shears made by the Cleveland Hardware Company and a National Cash Register. For further particulars, address
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A YOUNG MAN of good habits and 15 years' experience in the rod mill business is open for engagement; best of references furnished and especially in copper. Address "ENGAGEMENT," 526, office of *The Iron Age*, 96-102 Reade St., New York.

THOROUGHLY competent and energetic wholesale hardware office man, 30 years old, with 13 years' experience, desires position in either buying or sales department; capable of managing any department and will guarantee complete satisfaction; has been connected with two of the largest houses in the country and will furnish highest references. Address "OFFICE MAN," office of *The Iron Age*. Bank of Commerce Building, St. Louis.

A MIDDLE-AGED MAN, manager of the store room of one of the largest manufactories of brass work in the city, seeks a change; at present has entire charge of the giving out of material, keeping accurate account of the cost of jobs, &c., &c.; is a thoroughly competent bookkeeper. Address GEO. WILSON, Box 528, office of *The Iron Age*, 96-102 Reade St., N. Y.

BY AN EXPERIENCED Chemist, a position with an iron company. Address "ANALYST," office of *The Iron Age*, 96-102 Reade St., New York.

EXPERIENCED Traveler in the Steel or Hardware line; knows all the trade in the Chicago territory. Address "STEEL," office of *The Iron Age*, 59 Dearborn St., Chicago.

BY A YOUNG MAN, 23, as salesman or buyer, or both, in some wholesale house; have had seven years' experience in the general hardware and cutlery business for home and export trade; salary reasonable. Address "F. A.," Box 526, office of *The Iron Age*, 96-102 Reade St., New York.

A PERSON of 17 years' experience as Superintendent and manager of rolling mills, both constructing and operating, desires a position as superintendent of mill; can furnish good recommendations, and would not object to going anywhere. Address "ROLLING MILL," office of *The Iron Age*, 220 S. Fourth St., Philadelphia.

BY A COMPETENT MAN experienced in the hardware business; am thoroughly acquainted with all branches of the trade; have had 30 years' experience handling men, making estimates, &c., on special work in that business; A1 references as to ability, sobriety and energy. Address LOCK Box 834, Fort Plain, N. Y.

OFFICE POSITION as manager or assistant in gun store or gun department of hardware store; well posted and acquainted South and Southwest; was last buyer and assistant manager for G. Kittredge, Cincinnati; or would purchase interest in first-class retail hardware and gun store in small city West. Address M. BUFORD, 3930 Lucas Ave., St Louis, Mo.

RESPONSIBLE POSITION with wholesale hardware house; young man (28) thoroughly experienced in hardware business; familiar with the trade prices, discounts, &c. Address "13," office of *The Iron Age*, 96-102 Reade St., New York.

BY AN ACTIVE middle aged man as superintendent or sales agent; have been superintendent in a large architectural iron, fence and jail works for ten years; have 30 years' experience in wrought iron and foundry work. Address "LONG EXPERIENCE," office of *The Iron Age*, 96-102 Reade St., New York.

CHEMIST desires a situation with a steel works, blast furnace or ore company; Bessemer works preferred; 28 years old, graduate of a technical school and has had three years' experience. Address "CHEMIST," Box 630, Wheeling, W. Va.

A MECHANICAL Engineer and mechanic of long experience in various lines desires correspondence with parties in need of the services of a man experienced in designing tools and special machinery and thoroughly acquainted with all the details of modern manufacturing methods; past experience has been in the line of machine tools, engines, locomotives and general machinery. Address "CLIFTON," office of *The Iron Age*, 96-102 Reade St., N. Y.

A SITUATION as traveling salesman for agricultural implements, wagons and buggies, by a man with a good trade in the Southern States and Texas (this territory preferred). Satisfactory references furnished on application. Address "J. B.," Box 309, office of *The Iron Age*, 96-102 Reade St., New York.

WE WISH TO GET a place for a good all-round hardwareman, wholesale or retail, whom we can recommend; we are changing our business and will not need him, although he is and has been for years our best man in a $40,000 stock doing $100,000 and over annually; to those who want a good man this is a rare chance; age 45; speaks German and English. Address "RELIABLE," Box 519, office of *The Iron Age*, 96-102 Reade St., New York.

BY FOUNDRY FOREMAN, experienced and practical in heavy and light machinery work, core work, &c.; can produce first class work and handle men to advantage; could buy some stock if suited; A1 references. Address "MODERN METHODS," Box 519, office of *The Iron Age*, 96-102 Reade St., New York.

ACCOUNTANT.—A first-class double entry bookkeeper with 12 years' experience in large manufacturing mercantile companies, desires position; familiar with export trade and foreign accounts and perfectly competent for general office work; compensation moderate; references very best. Address "A.," care of Hardware Board of Trade, 4 Warren St., N. Y.

TO REPRESENT in the State of Texas manufacturers of hardware, &c., by a man with 15 years' experience and favorably known to the trade throughout the State; office and sample room at San Antonio, Texas. Address "TEXAS HARDWARE," office of *The Iron Age*, 96-102 Reade Street, N. Y.

FOREMAN MOLDER desires to make a change; an experienced man on engine and all kinds of jobbing work, have had practical experience in green, dry sand and loam; strictly temperate, good references, thoroughly competent. Address "S.," Box 519, office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

AN EXPERIENCED business man thoroughly familiar with the manufacture of metal goods, with a long experience in estimating costs of manufacture, purchasing supplies, organizing help and marketing goods, perfectly familiar with all office work, would like a responsible position with a first-class house. Address "O. F. C.," Box 526, office of *The Iron Age*, 96-102 Reade St., New York.

BY A THOROUGH practical rolling mill Manager for iron and steel products; can make high grades of either; can utilize old rails or scrap to advantage; is highly endorsed by late employers and A1 references for ability, sobriety and integrity. Address "V. IRON AND STEEL," P. O. Box 523, Pittsburgh, Pa.

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BY CHEMIST of extended experience, right up in steel working, blast furnace work and products, copper ores and products and assaying. A1 references. Address JOS. E. HAINES, 3008 Linden Square, Philadelphia, Pa.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as superintendent of manufacturing establishment. Address "MULLACH," Box 33, office of *The Iron Age*, 96-102 Reade Street, New York.

BY THE ADVERTISER, as Bookkeeper and Correspondent with a manufacturing house or a large hardware dealer; a position where energy and faithful service would be appreciated. Has at present good position with a real estate firm, but the business is not congenial and desires to return to the metal trade again. Has had nearly 10 years' experience as bookkeeper, correspondent, time keeper, shipper and looking after help. Familiar with the tin, brass and copper, sheet metal goods, brass goods and hardware branches. Is considered a good double-entry bookkeeper and fair correspondent. Also has had about 4 years' experience selling goods throughout the United States, Canada and Great Britain. Will accept a position at very low salary first year providing that if thorough satisfaction is given, a permanent position at fair salary is promised. Can commence an engagement on the 10th of June, or any succeeding month. Locality is no object, will go anywhere in the United States. Advertiser is 28 years of age and is married; can furnish first-class references. Address W. A. LANGFORD, office of *The Iron Age*, 59 Dearborn Street, Chicago, Ill.

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AN ACTIVE BUSINESS MAN, with considerable experience in the management of iron and coal companies, desires a position of trust and responsibility; is competent to fill an executive or other office. Address "W. W. W.," office of *The Iron Age*, 96-102 Reade St., N. Y.

A THOROUGHLY competent man, 20 years' business experience in New York and Brooklyn, desires a position as collector for some reliable house. Address "COLLECTOR," office of *The Iron Age*, 96-102 Reade Street, N. Y.

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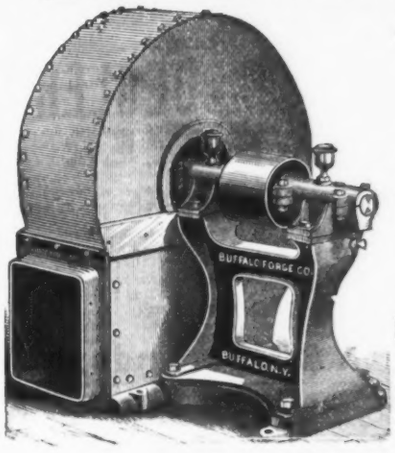

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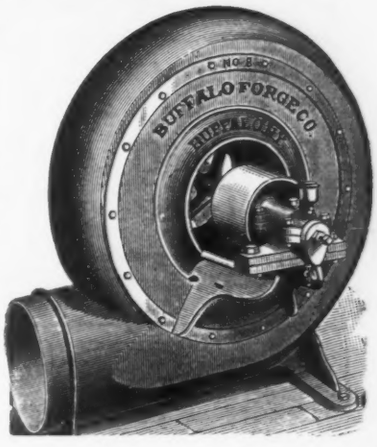

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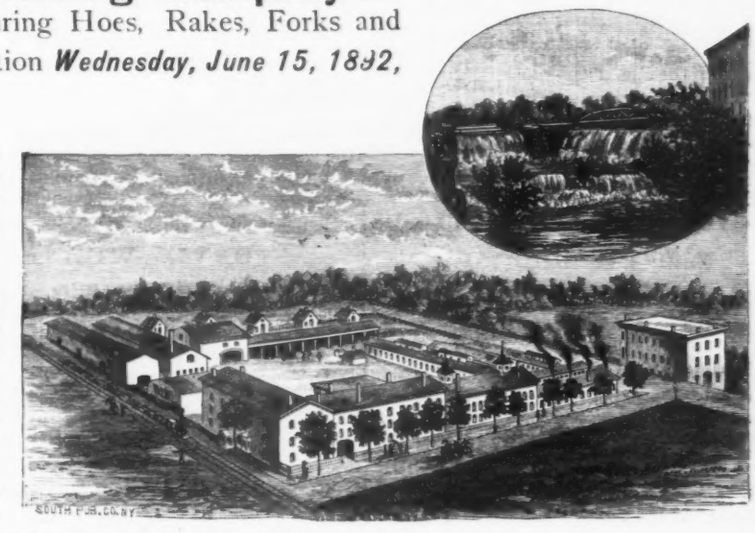
The Auburn Manufacturing Company's Plant located at Auburn, N. Y., fully equipped for manufacturing Hoes, Rakes, Forks and Scythes, will be sold at public auction ***Wednesday, June 15, 1892,*** at two o'clock, on the premises.



The buildings surround a hollow square of several acres in extent, as shown in accompanying cut. The main buildings are substantially constructed of stone and brick, thoroughly equipped with fire extinguishing apparatus, and cover the entire frontage of the property, 350 feet.

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The Plant is located on the line of the New York Central Railroad, as shown in cut, and but a few rods distant from Lehigh Valley Railroad, thus affording unequaled shipping facilities.

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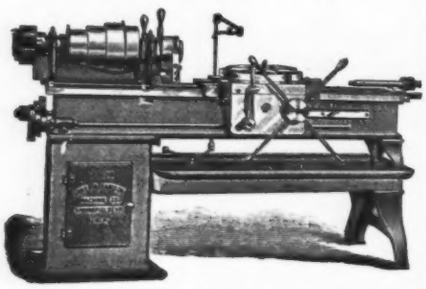

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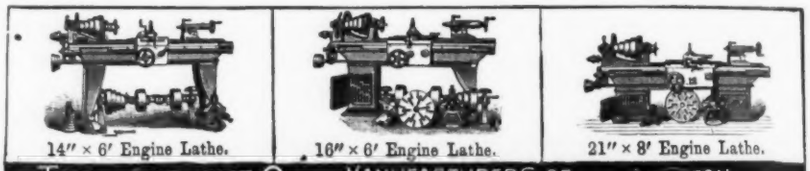

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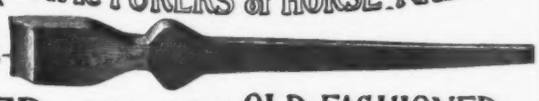

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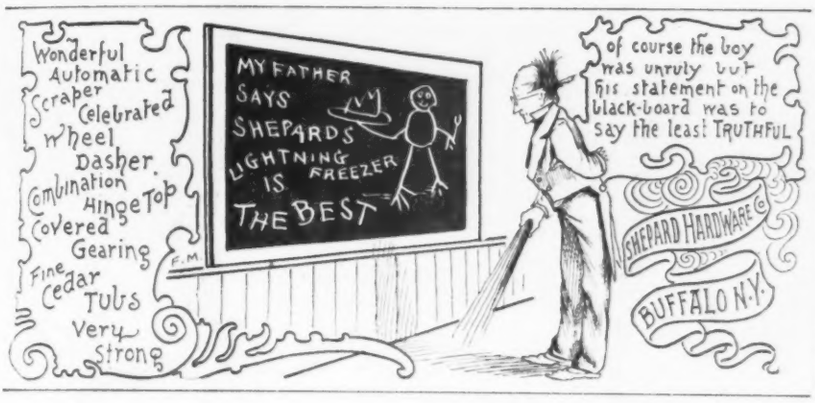

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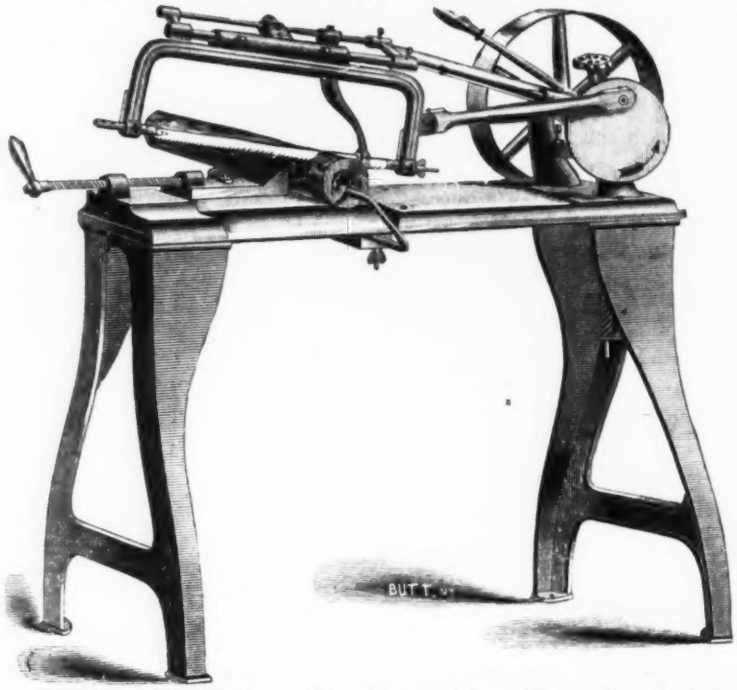

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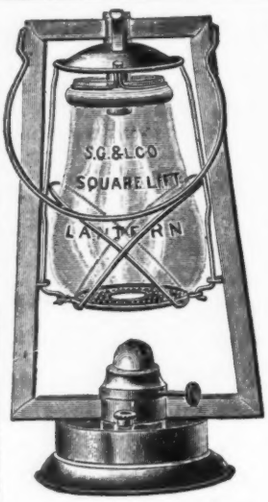

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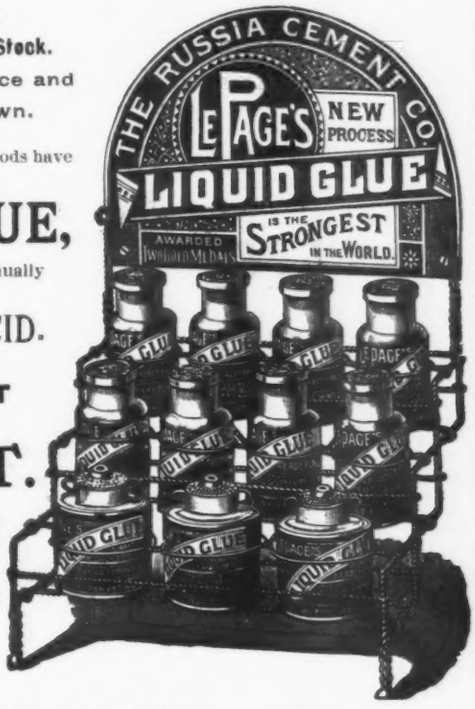

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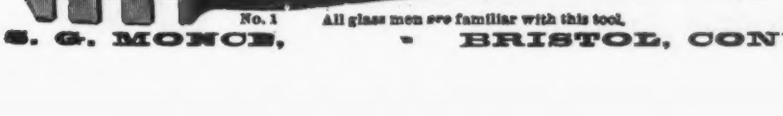

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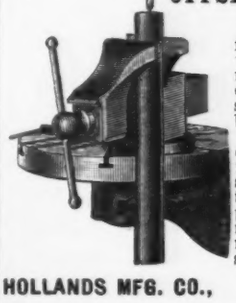

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Fig. 130.

Fig. 70.

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Fig. 209.

Fig. 381.

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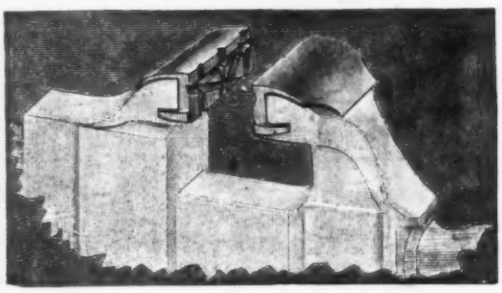

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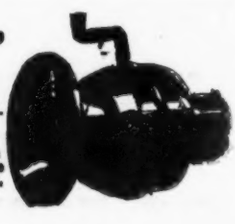

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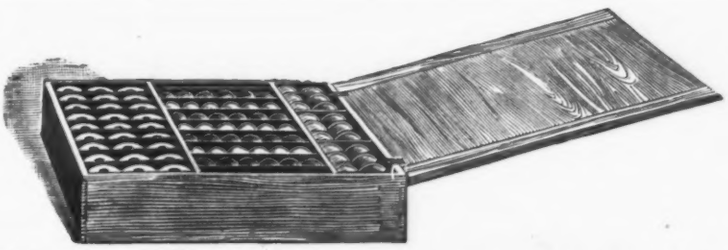

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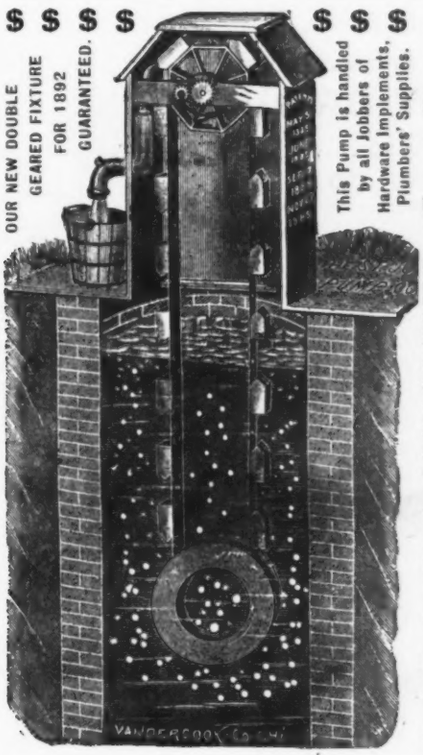

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ATKIN'S PAT. EXCELSIOR SAW TOOLS

For Use in Fitting up Cross-Cut Saws.

Comprising a Combined Side File, Jointer and Tooth Gauge, by the aid of which Cross-Cut Saws may be kept in much better order than is possible without them. The value of the Setting Block will be readily estimated, as it is well known that saws having a proper temper cannot be safely set with a wrench, or "Spring Sets" made for the purpose; while with our Setting Block saws of very high temper and of the finest steel can be easily set.

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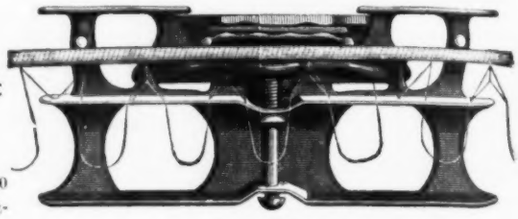

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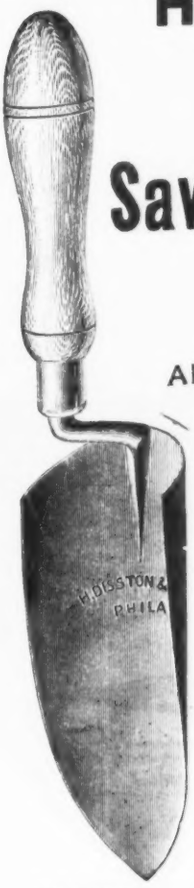

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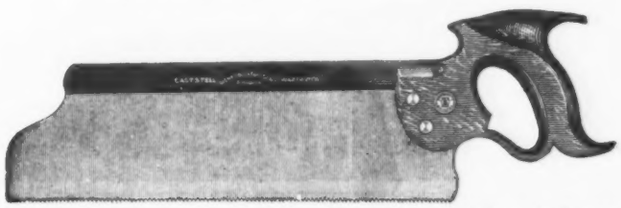

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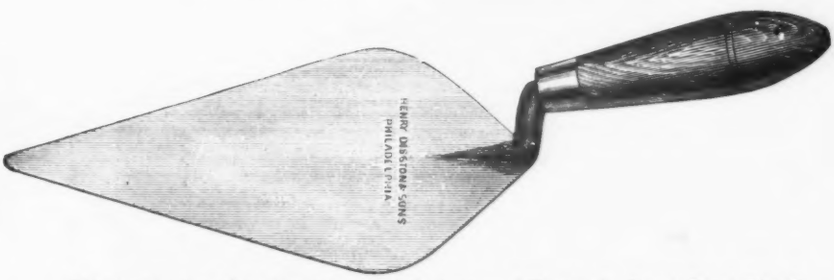

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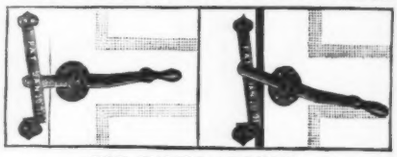

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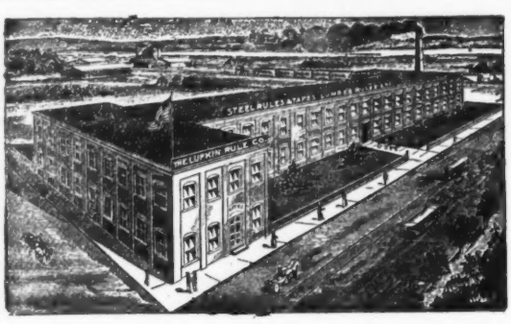

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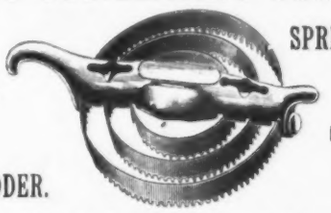

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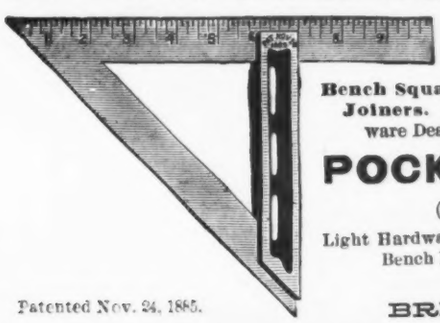

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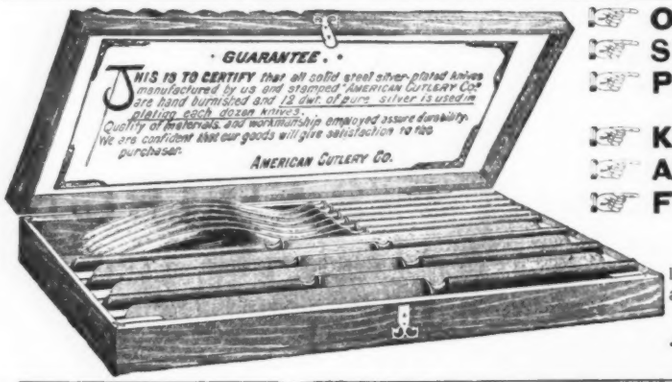

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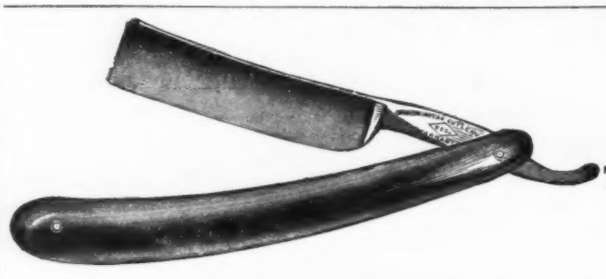

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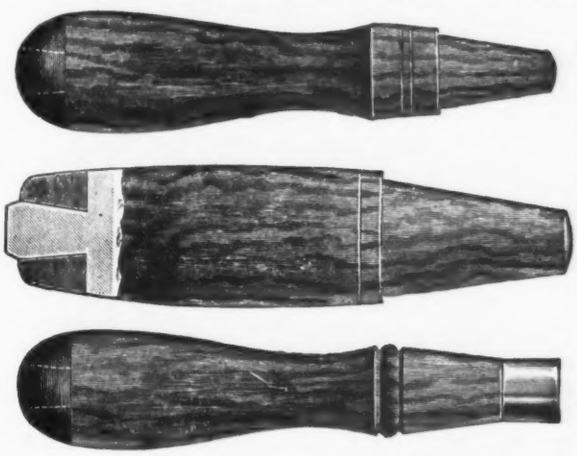

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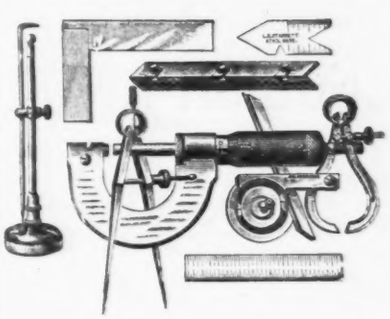

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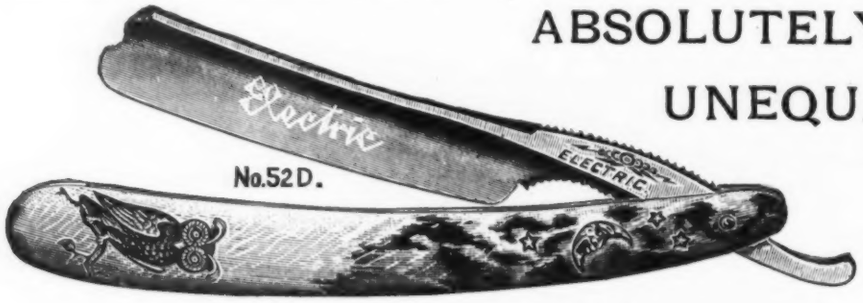

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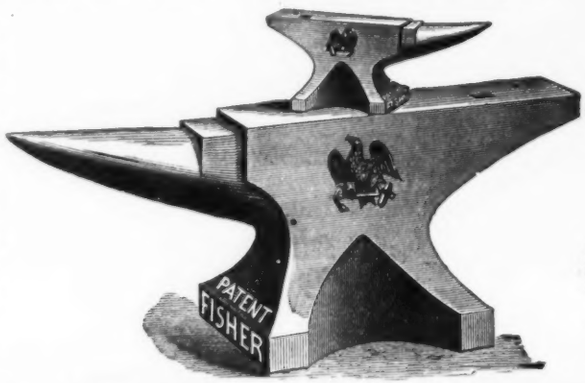

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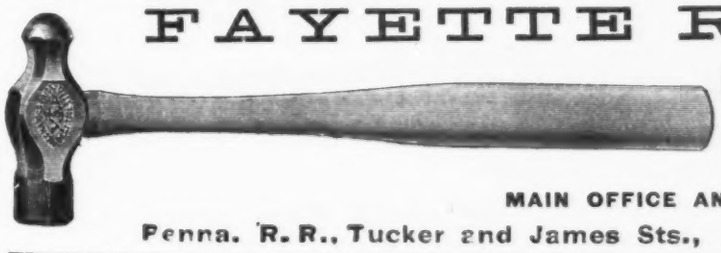

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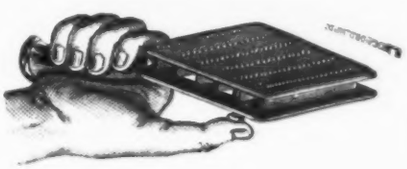

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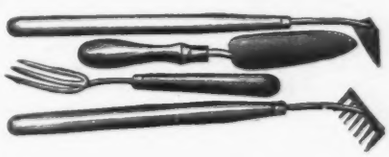

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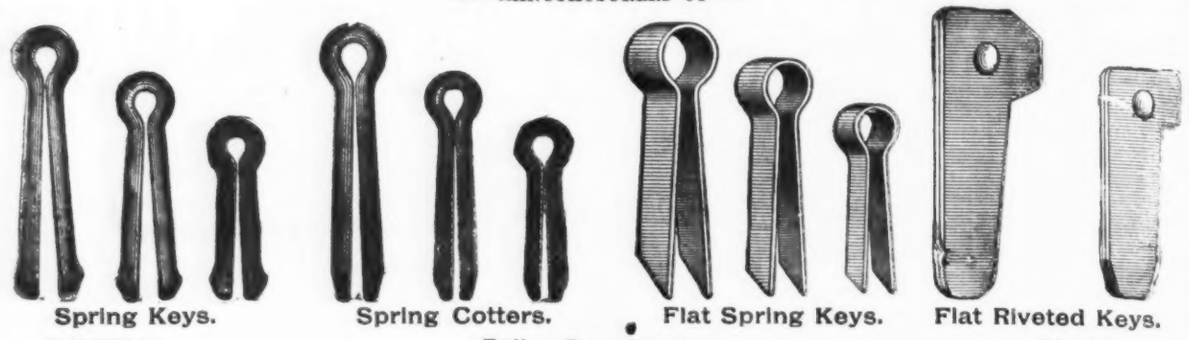

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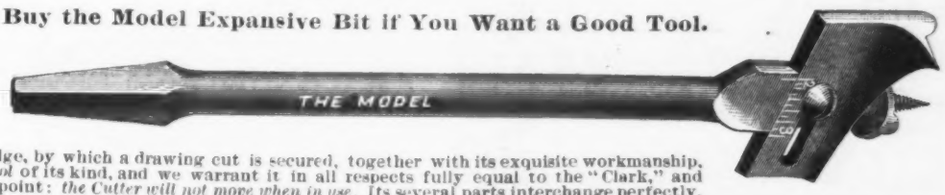

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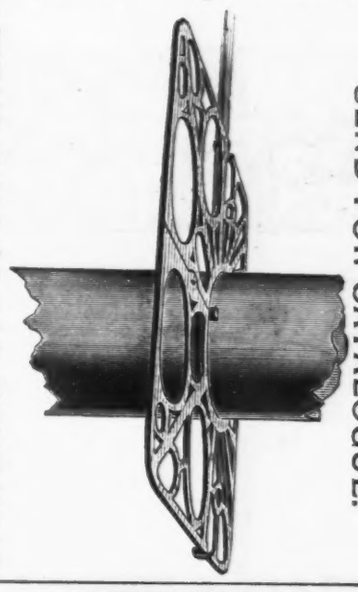

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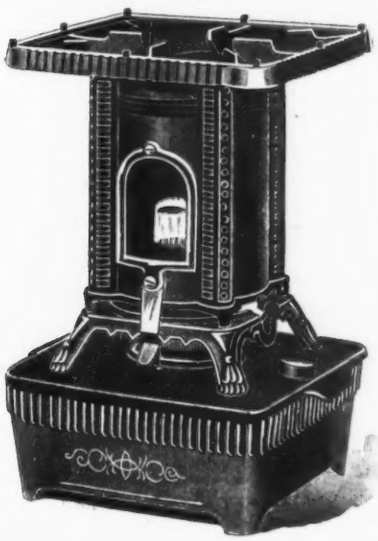

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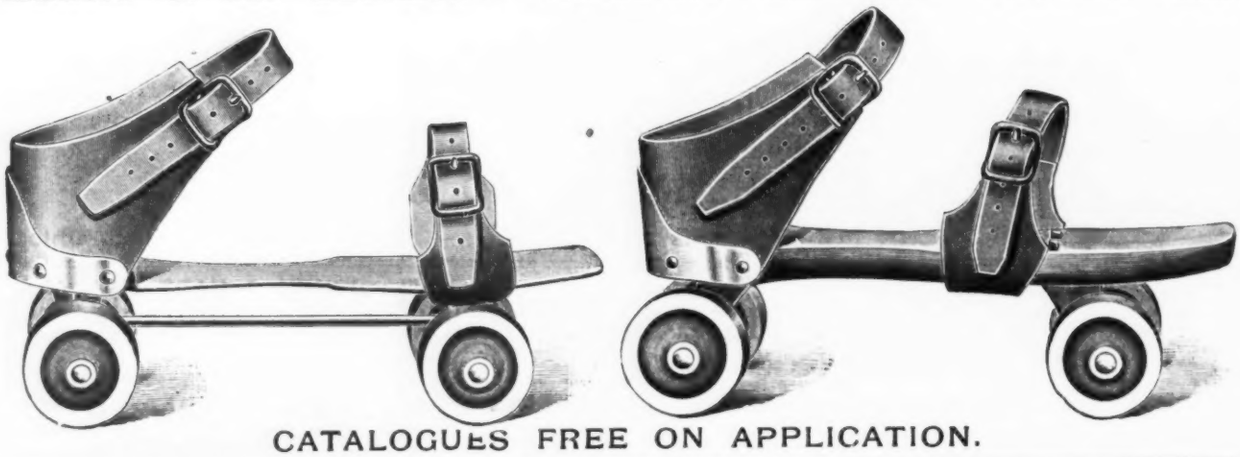

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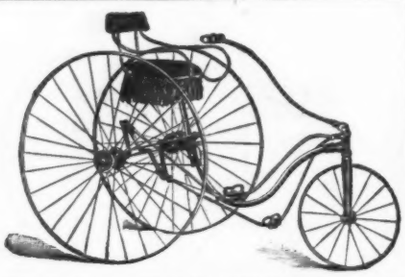

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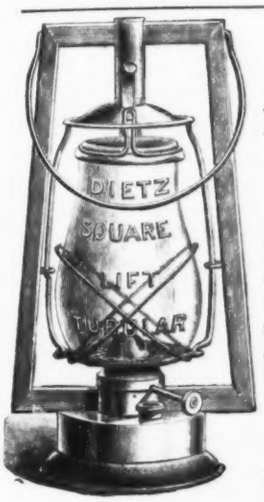

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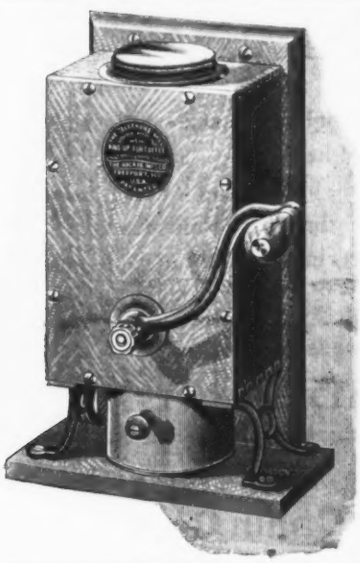

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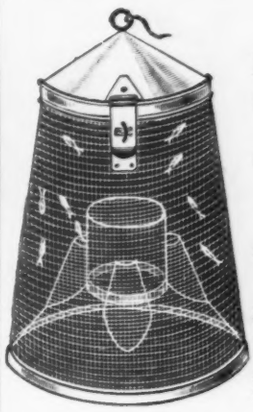

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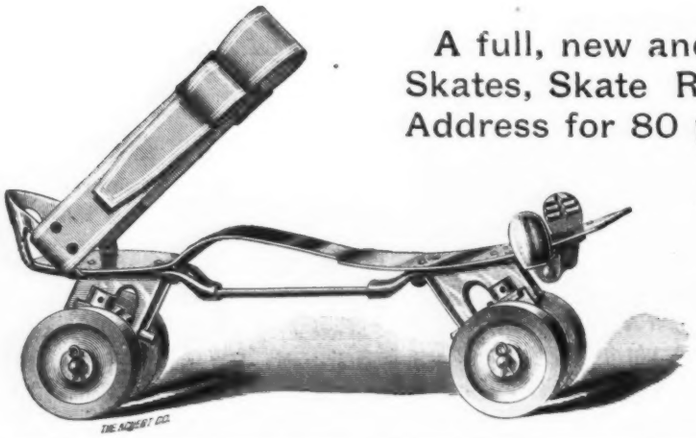

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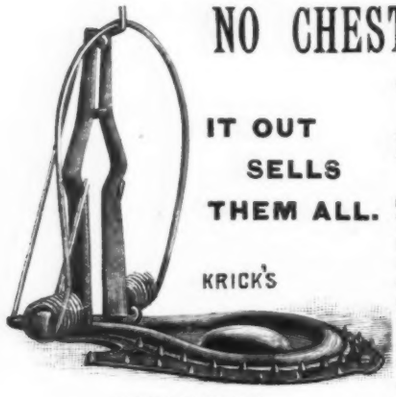

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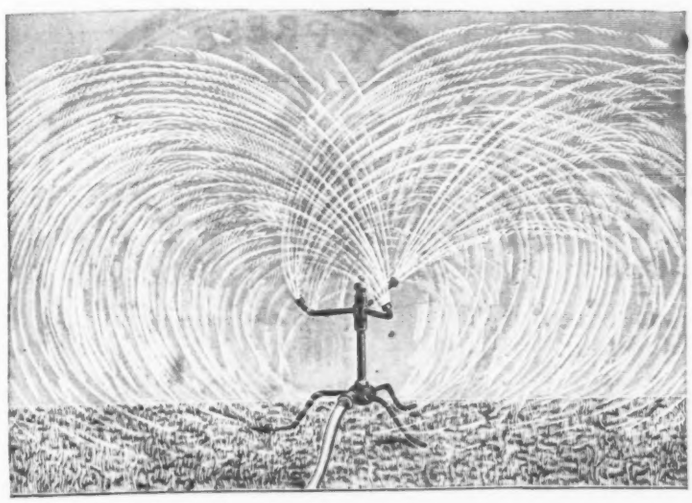

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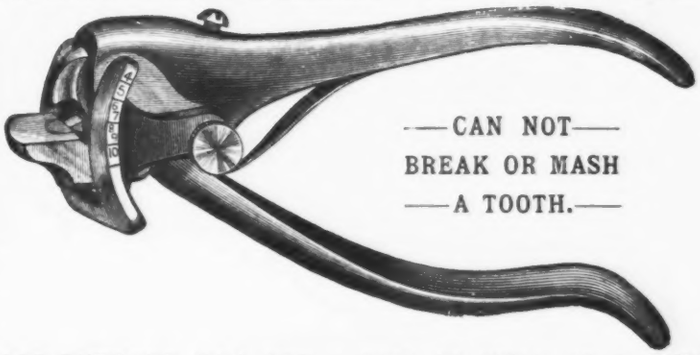

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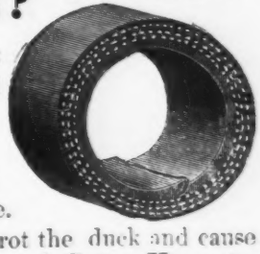

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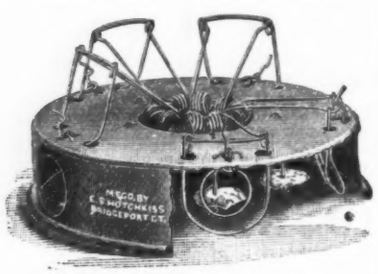

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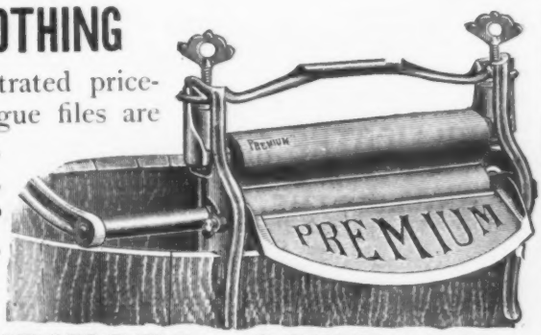

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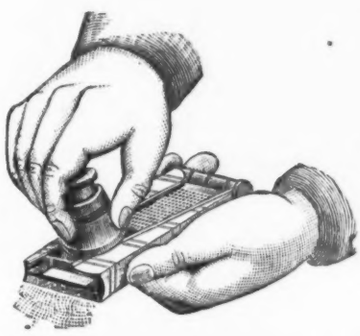

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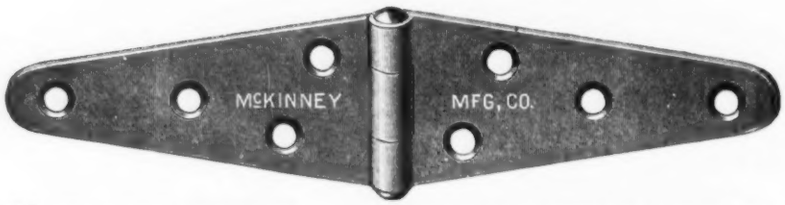

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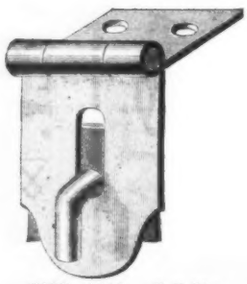

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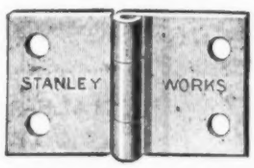

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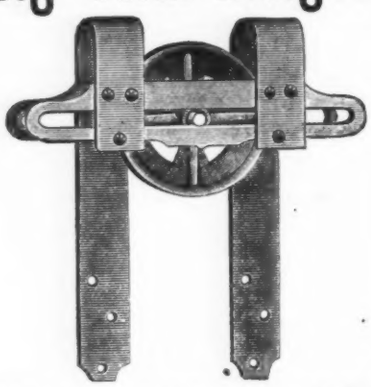

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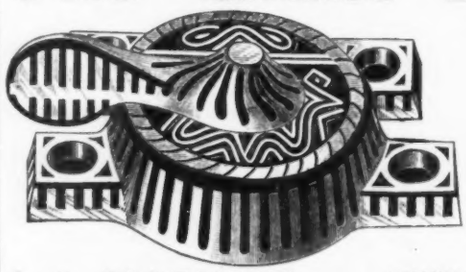

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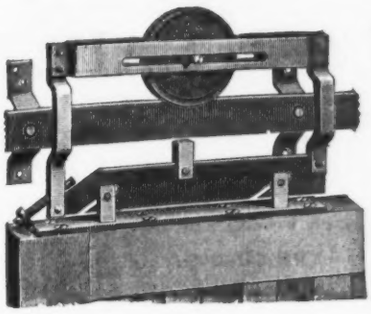

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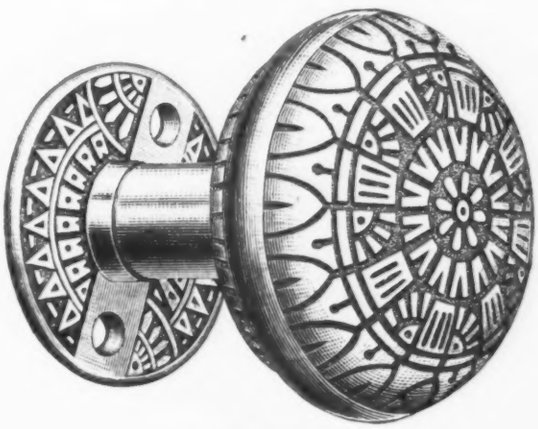

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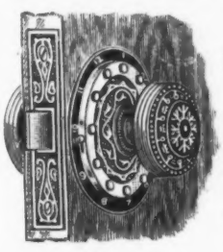

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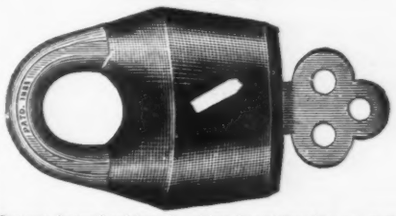

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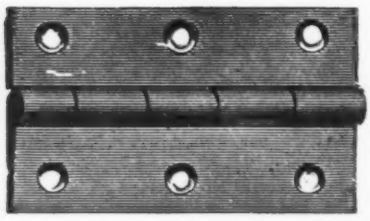

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The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

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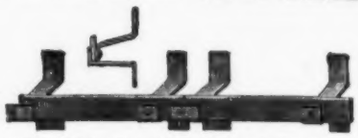

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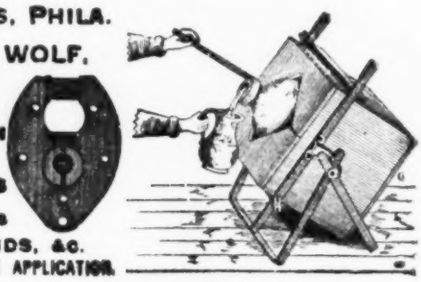

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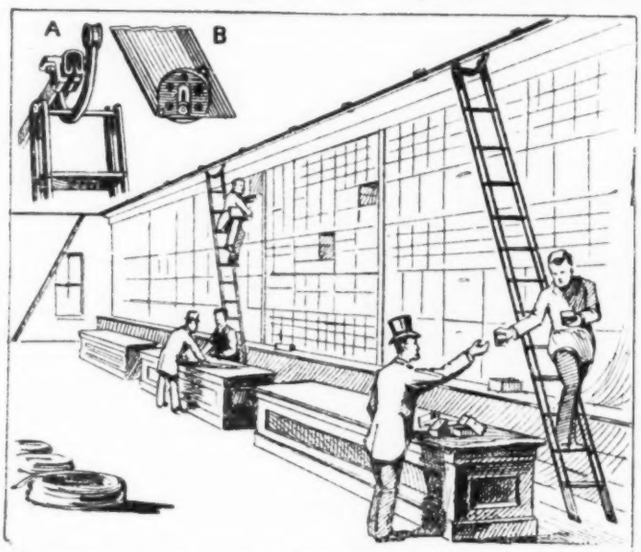

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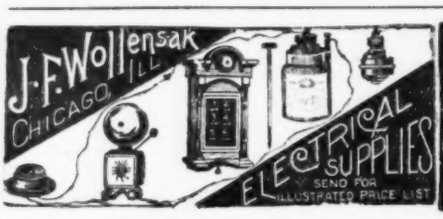

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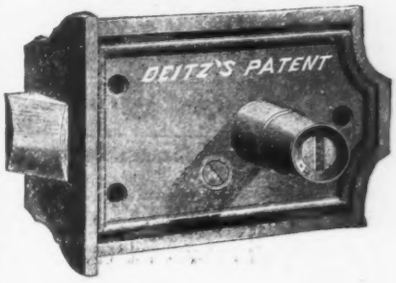

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These **Revolving** or **Adjustable** Bases enable the Lifter to be secured to any style of moulding or narrow beading (see cut on right) and to either

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Shows possible position of rotatable base.

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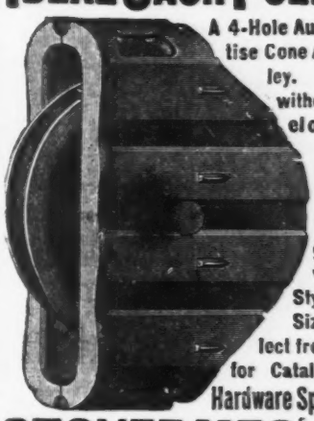

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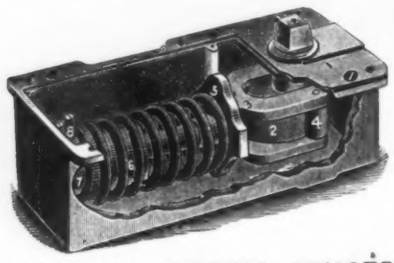

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FOR SWING DOORS.

Applied in floor under door. They close the door gently, without noise or violence and stop it at once at the centre. Doors cannot sag, springs do not break or set.

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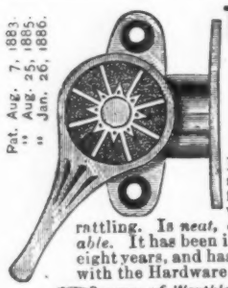

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Has by its *unequalled merits* gained the public favor. It is a safe ventilator and prevents rattling. Is *neat, cheap, simple and durable.* It has been in *extensive use* for over eight years, and has become a *staple article* with the Hardware trade.

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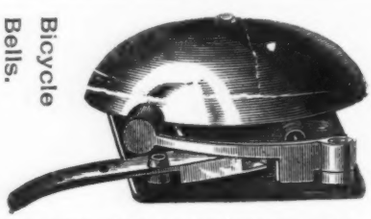

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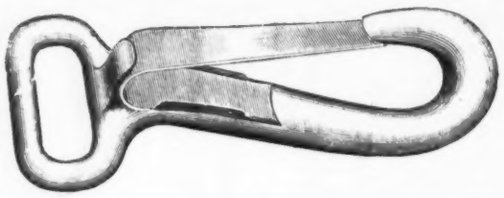

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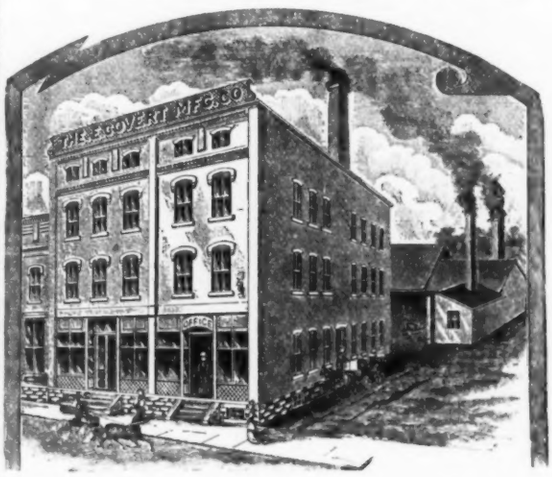

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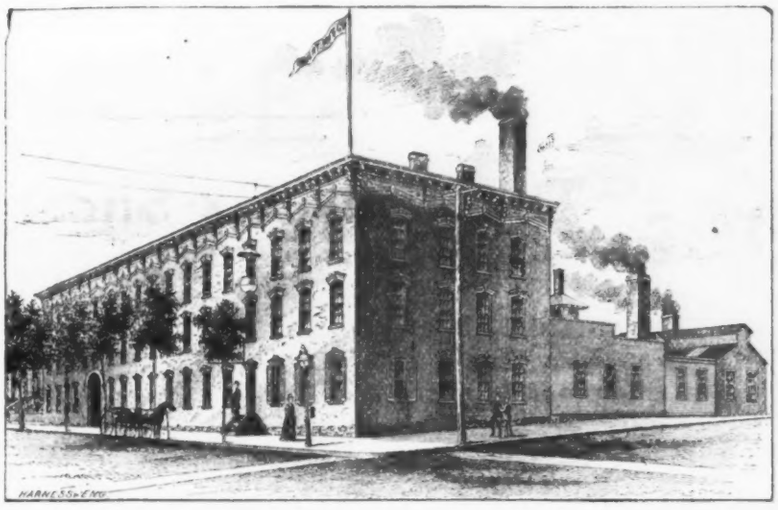

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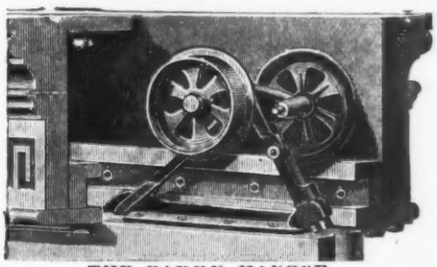

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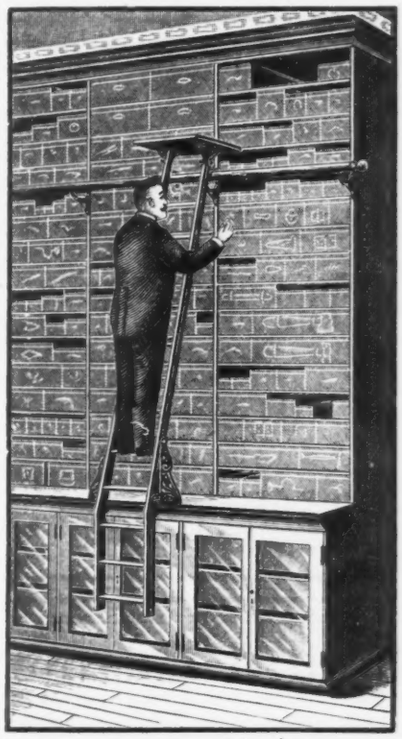

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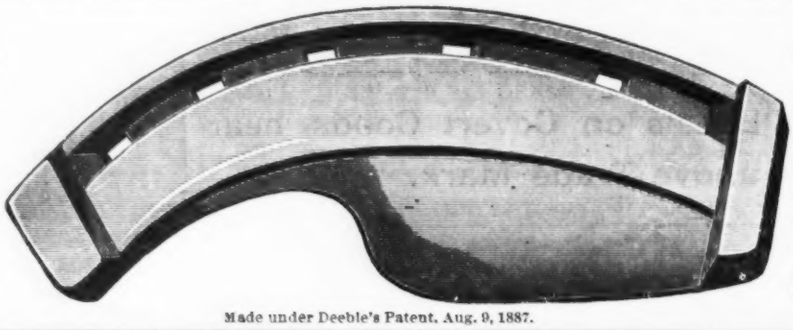

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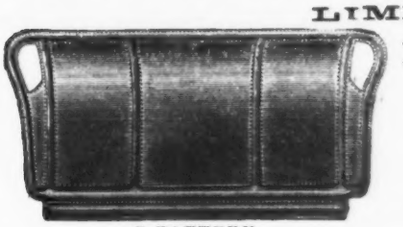

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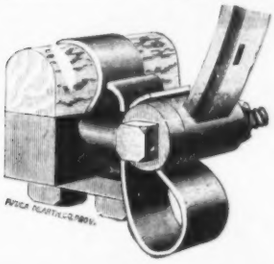

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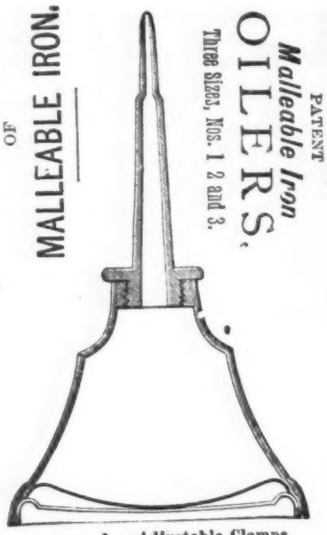

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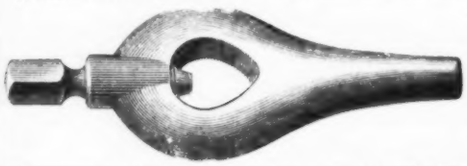

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2	⅞	70	12	⅜	1 60
3	1	70	13	3⅛	1 80
4	1⅛	80	14	1	2 1
5	1¼	80	15	1⅛	2 7
6	1⅜	95	16	1	3 2
7	1⅝	95	17	1⅛	4 8
8	1¾	1 10	18	1⅜	5 0
9	2	1 20	19	1	6 0
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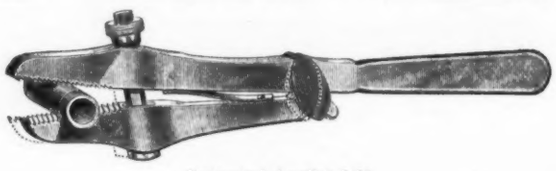

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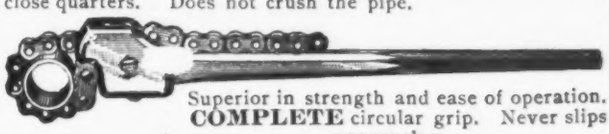

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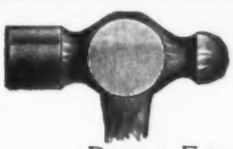

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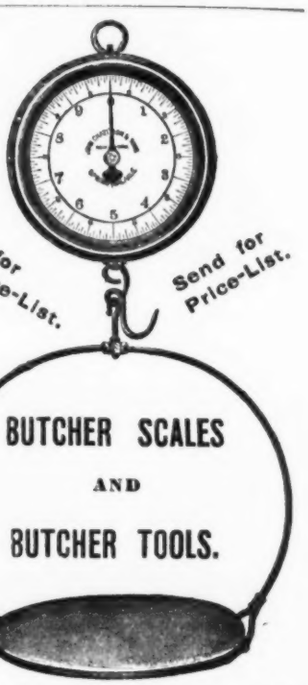

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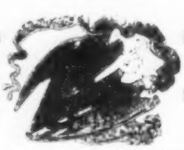

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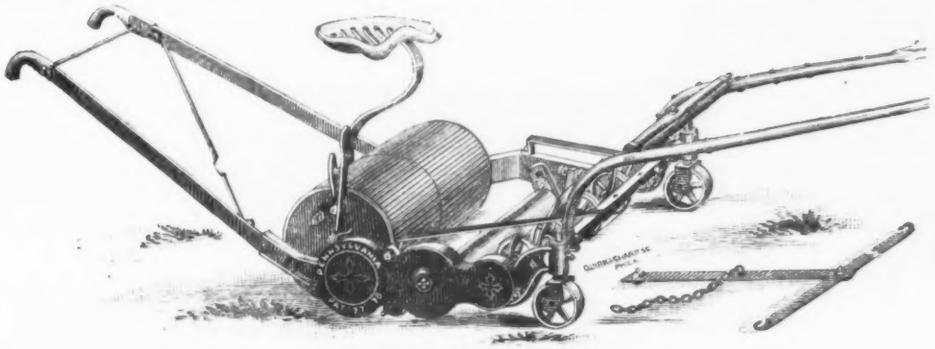

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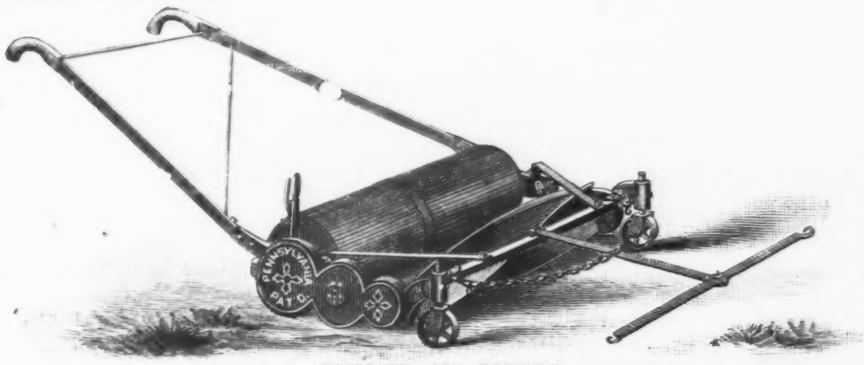

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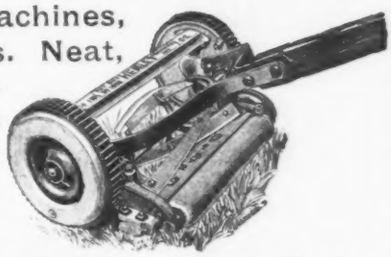

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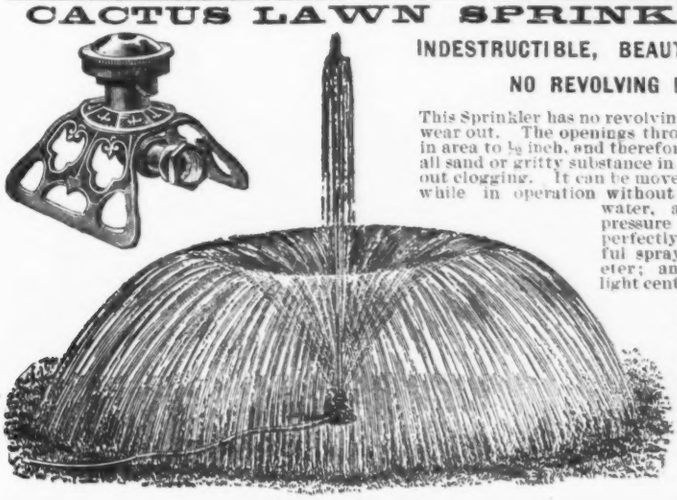

This Sprinkler has no revolving parts to leak or wear out. The openings throughout are equal in area to ½ inch, and therefore will pass freely all sand or gritty substance in the water without clogging. It can be moved about the lawn while in operation without turning off the water, and with a low pressure will distribute a perfectly even and beautiful spray 30 feet in diameter; and in addition a light center fountain spray 15 to 18 feet in height. It is recommended as the most durable, beautiful and cheapest Sprinkler in the market and is guaranteed to give entire satisfaction to any purchaser. For sale by all dealers.

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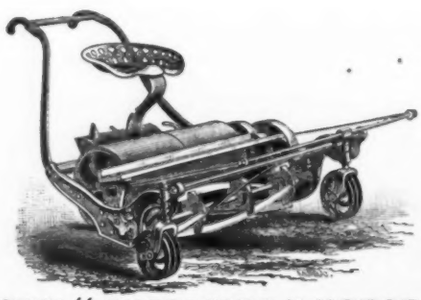

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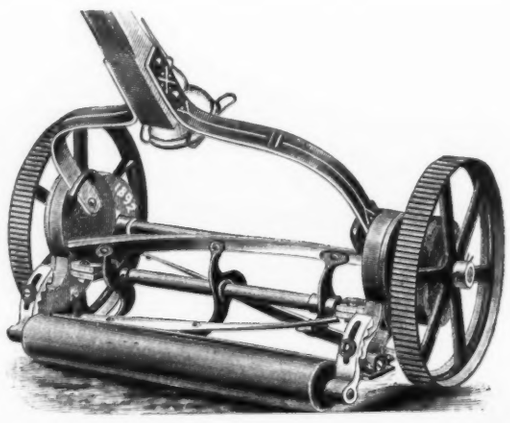

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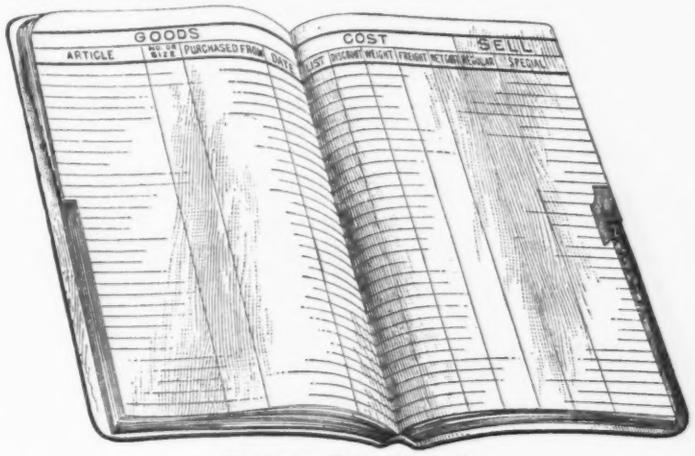

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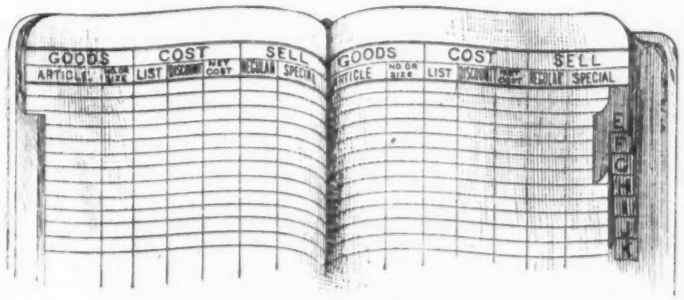

Hardware Price Book B.

In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

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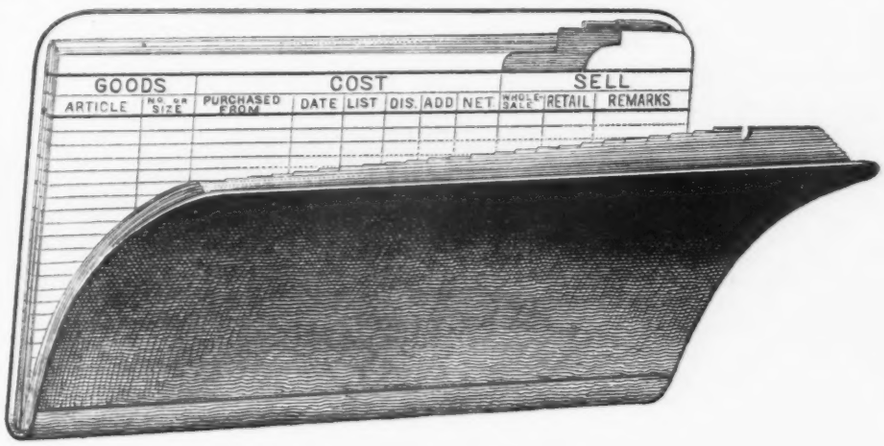

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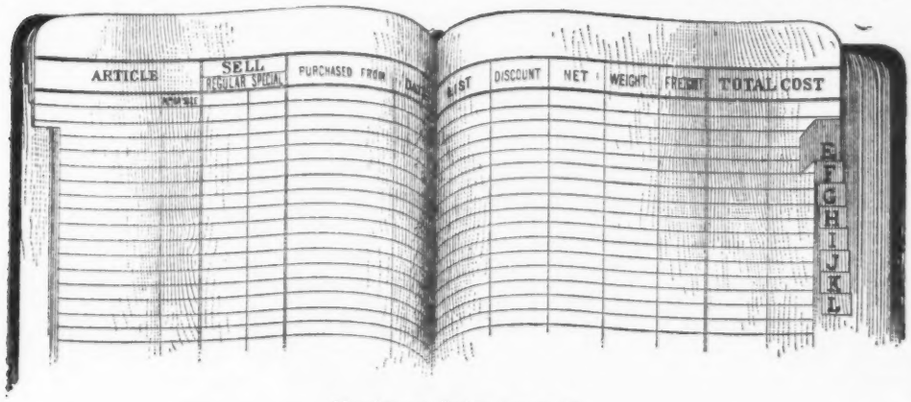

Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction.

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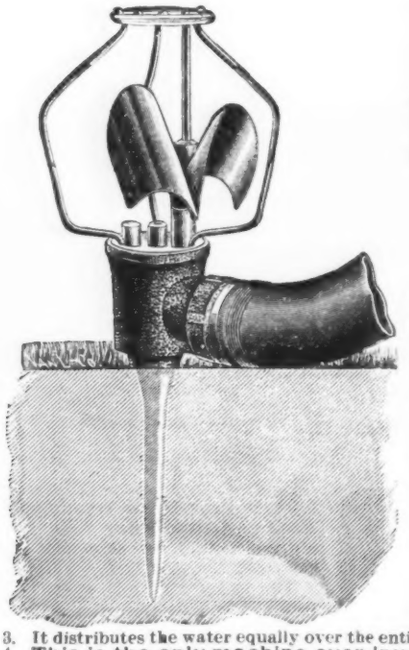

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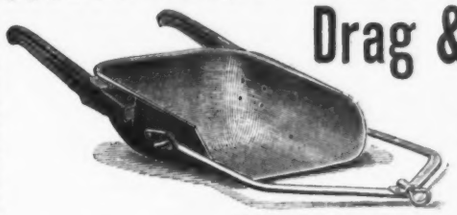

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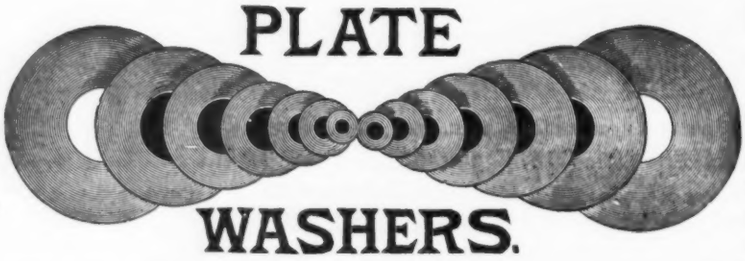

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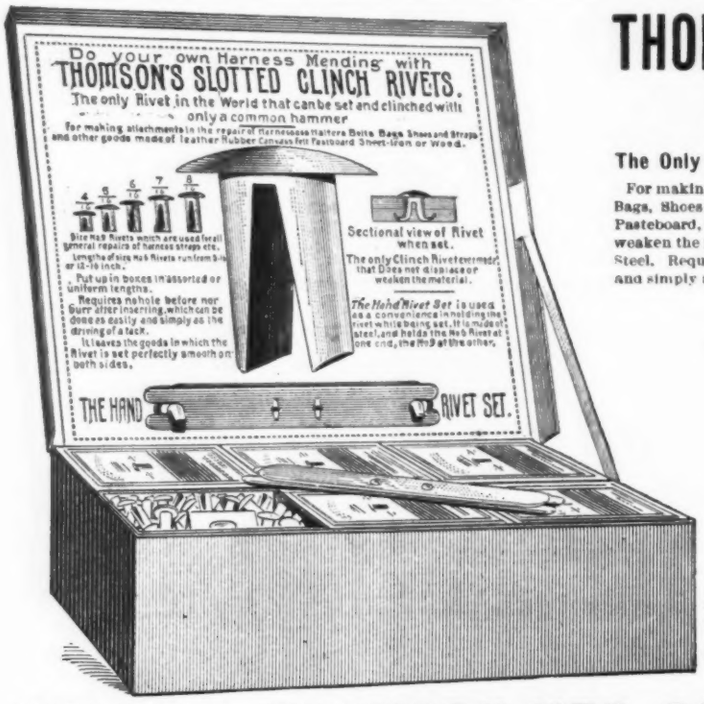

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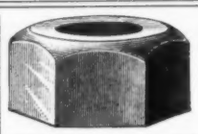

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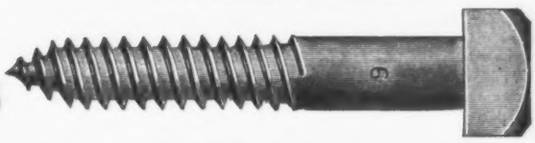

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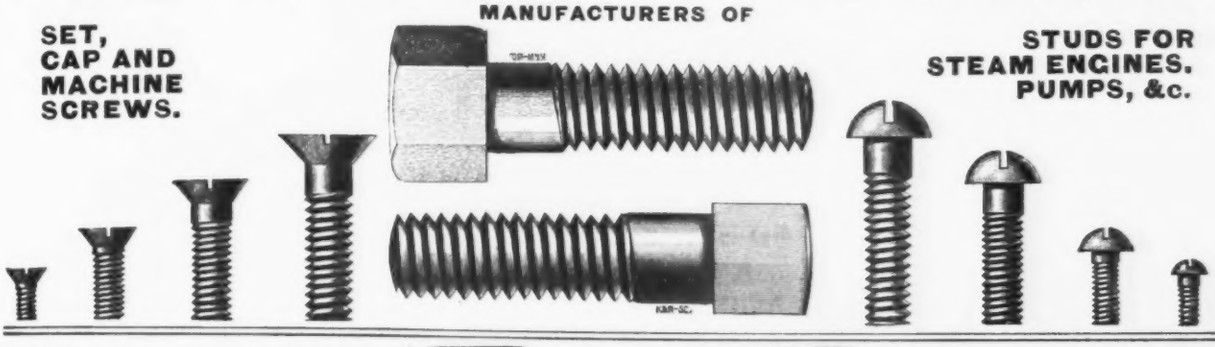

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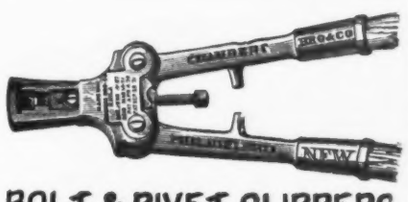

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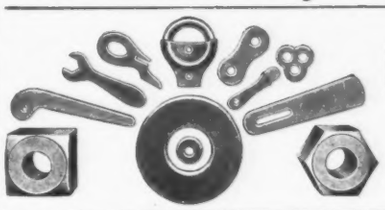

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Coventry Machinists Co., L'd, Boston, Mass.
Eagle Bicycle Mfg. Co., Torrington, Ct.
Lovell, Jno. P. Arms Co., Boston, Mass
Monarch Cycle Co., Chicago, Ill.
Pope Mfg. Co., Boston, Mass.
Read, Wm. & Sons, Boston, Mass.
Rouse-Duryea Cycle Co., Peoria, Ill.
Sweeting Cycle Co., Philadelphia, Pa.
Western Wheel Works, Chicago, Ill.

Bits and Braces.
Backus Mfg. Co., Williamsport, Pa.
Bridgeport Gun Implement Co., 313 315 Broadway, N. Y.
Jennings, G. F. & Co., 97 Chambers, N.Y
Surpless, Dunn & Alder, 97 Chambers St., N. Y.

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Cleveland Block Co., Cleveland, O.
Fulton Iron & Engine Works, Detroit Mich.
Toledo Block Works, Toledo, O.

Blowers.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F., & Co., Boston, Mass.

Boiler Makers' Rolls.
New Doty Mfg. Co., Janesville, Wis.

Boiler Plates.
McIlvain, Wm. & Sons, Reading, Pa.
Lukens Iron & Steel Co., Coatsville, O.
Pottstown Iron Co., Pottstown, Pa.

Boilers, Copper.
Randolph & Clowes, Waterbury, Conn

Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt.
Campbell & Zell Co., Baltimore, Md.
Chandler & Taylor Co., Indianapolis.
Edge Moor Iron Co., Wilmington.
Harrisburg Foundry & Mch. Works, Harrisburg, Pa.
Pollock, W. B. & Co., Youngstown, O.
Southwark Fdy. & Mch. Co., Phila., Pa
Wetherill, Robt. & Co., Chester, Pa.

Belt Cutters.
Chambers Bros. Co., Philadelphia.
Howard Iron Works, Buffalo N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Ore.
Williams, David, 96 & 102 Reade N. Y
Wolcott & West, Syracuse, N. Y.

Boxes, Hdw. Shell, &c.
Green, A H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Box Openers.
Paragon Mfg. Co., 112 Chambers St.,

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Davol, John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Randolph & Clowes, Waterbury, Conn,
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., Waterbury, Conn.
Waterbury Brass Co., 296 B'way, N. Y.

Brass Butt Hinges.
Tiebout, W. & J., 16 & 18 Chambers

Brass Founders.
Cramp, B. H. & Co., Philadelphia, Pa.
Haight & Clark, Albany, N. Y.
Reeves, Paul S., Philadelphia.
Springfield Foundry Co., Springfield, Mass.

Brass Goods.
Brass Goods Mfg. Co., 88 Chambers,

Bridge Builders.
Berlin Iron Bridge Co., East Berlin, Ct

Bronze (Tobin).
Ansonia Brass & Copper Co., 19-26 Cliff Street, N. Y.

Builders' Hardware.
Claflin Mfg. Co., Cleveland, Ohio.
Deitz, A. E., 97 Chambers St., N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw Co., Reading, Pa.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Ct.

Butcher and Shoe Knives, *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson, John, Sheffield, England.

Butts and Hinges.
McKinney Mfg. Co., Alleghany, Pa.
Sabin Machine Co., Montpelier, Vt.
Stanley Works, New Britain, Conn.
Tiebout, W. & J., 16 Chambers, N. Y.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Openers.
Chieftain Company, Canton, O.

Car Axles.
Roberts, A. & P. & Co., Phila.

Carboy Stands.
Hillebrand & Wolf, Philadelphia, Pa.

Car Wheels.
Whitney, A. & Sons, Phila.

Carriage Hardware, *Makers of.*
Covert, E. Mfg. Co., Farmer Village, N.Y.
McKinnon Dash & Hdw. Co., Ltd., Buffalo, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe Co., Burmingham, Conn.

Cartridge Reloading Tools.
Ideal Mfg. Co., New Haven, Conn.

Casters, Wheel, &c.
Clark, G. P., Windsor Locks, Conn.

Cash Registers.
Waddel, J. M. Mfg. Co., Greenfield, O.

Castings, Iron and Steel.
Ames Sword Co., Chicopee, Mass.
Arcade Malleable Iron Co., Worcester Mass.
Aschman Steel Casting Co., Sharon, Pa
Booth, The Lloyd, Co., Youngstown, O.
The Burr & Houston Co., Brooklyn, N.Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Cheney, S. & Son, Manlius, N. Y.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Heads Iron Foundry, Utica, N. Y.
Herrick, J. A., 284 Pearl St., N.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Johnson Company, Johnstown, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil,
Mahoning F'dry & Mch. Co., Danville, Pa.
New Castle Steel Casting Co., New Castle, Pa.
Norristown Steel Co., Norristown, Pa
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Novelty Iron Works, Allentown, P.
Palmers & De Moor, Cleveland, O.
Pratt & Letchworth, Buffalo, N. Y.
St. Louis Steel Fdy. Co., St. Louis, Mo.
Sessions Foundry Co., Bristol, Conn.
Spencer's, I. S., Sons, Guilford, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
Springfield Steel Casting Co., Springfield, O.
Standard Fdy. & Mfg. Co., Cleveland, O
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Taylor & Boggs Fdry Co., Cleveland, O.
Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.
Trenton Mal. Iron Co., Trenton, N. J.
Union Mfg. Co., 103 Chambers St., N.Y.
Wetherill, Robt. & Co., Chester, Pa.

Cellar Drainers.
Friedenwald Bros., Baltimore, Md.
Kemp, Clarence M., Baltimore, Md.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Link-Belt Engineering Co., Phila. a.
McKay, Jas. & Co., Pittsburgh, Pa.

Cherry Stoners.
Enterprise Mfg. Co., Philadelphia, Pa.

Chimneys.
Phila. Engineering Works., Phila., Pa.

Chisels, *Manufacturers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks Conn.
Nat. Chuck Mfg. Co., Mt. Vernon, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
Whiton, D. E. Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn
Le Count, C. W., So. Norwalk, Conn.

Clipping Machines.
McCoy, Jos. F. & Co., 23 Warren St.

Clock Springs, *Manuf'rs of*
Haley Mfg. Co., Concord, N. H.

Coal.
Wister, Francis, Philadelphia

Coffee and Spice Mills.
Arcade Mfg. Co., E. Freeport, Ill
Chillicothe Mfg. Co., Chillicothe, O
Lane Bros., Poughkeepsie, N. Y.
Waddel, Jno. M Mfg. Co., Greenfield, O

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited) 4 and 6 Warren, N. Y.

Conveyors.
Link Belt Engineering Co., Phila., Pa.

Copper.
Ames Sword Co., Chicopee, Mass.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Edes, Edw. L., Plymouth, Mass.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.
Wister, Francis, Philadelphia, Pa.

Cordage.
Elizabethport Cordage Co., 46 South,
Samson Cordage Works, Boston, Mass.

Corn Huskers.
Perkins, H. H. Mfg. Co. Kewanee, Ill.

Corrugated Furnaces.
Continental Iron Works, Brooklyn N. Y.

Corrugated Iron.
Cambridge Rooding Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Miller, Jas A. & Bro., Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.

Counting Machines.
Osborn, G. Edw. & Co., New Haven, Ct.

Coupling.
Almond, T. R., Brooklyn, N. Y.

Coverings, Boiler and Pipe.
Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Allentown Rolling Mills, Allentown, Pa
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Byram & Co., Detroit, Mich.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Kohler, F. E. & Co., Canton, O.
Noyes, B. B. & Co., Greenfield, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co., Chicago, Ill.
Curley, J. & Bro., 6 Warren St., N. Y.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N.Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain, Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia, Pa.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Elevators.
Smith Hill Co., Quincy, Ill.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R, I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
Tallman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

See Alphabetical Index, Page 114.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Buckeye Engine Co., Salem, Ohio
Chandler & Taylor Co., Indianapolis.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works, Harrisburg, Pa.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. C. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N.Y.
Kelley, B. F. & Son, 31 Liberty St., N. Y
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum E. T. Detroit, Mich
Buffalo Fence Wire Co., Buffalo, N. Y.
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St., Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Foos Mfg. Co., Springfield, Ohio.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collins, Victor, Detroit, Mich.
S. Obermayer Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Machines.
Remp, Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Mass.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. W. & Co., Gloucester, Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grinding Mills.
Foos Mfg. Co, Springfield, O.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Chicago Spring Butt Co., Chicago, Ill
Coburn Trolley Track Mfg Co, Holyoke, Mass
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brady Mfg. Co., Brooklyn, N. Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Granam, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplee, Dunn & Alder, 97 Chambers St., New York.
Underhill, Clinch & Co. 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Cleveland Fdy. Co., Cleveland, O.
Copeland Hdw. Mfg. Co., Worcester, Mass.
Cronk Hanger Co., Elmira, N. Y.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Welland, Chas, 113 Chambers St., N. Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.
Missouri Mal. Iron Co., St. Louis, Mo.

Hog Rings and Ringers.
Hill, Hugh W. & Co., Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg. & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, L. D., N. Y
Stuart & Peterson Co., Phila., Pa.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. E., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St, N. Y.
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Peerless Freezer Co, Cinn., O.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H.

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. R. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Kesley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Filling & Crane, Philadelphia, Pa.
Walbaum, W. H. & Co., Philadelphia.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Walbaum, W. H. & Co., Philadelphia.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 446 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, H. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.
Walbaum, W. H. & Co. Philadelphia.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Joist Hangers.
Duplex Hanger Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lamps.
Standard Lighting Co., Cleveland, O

Lanterns.
Dietz, R. E. & Co, 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.
N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Bonnette Arc Sprinkler Co., Bay City, Mich
Etze & Henger Mfg. Co, St. Louis Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Athol, Mass.

Locks & Knobs, *Manufacturers of.*
Brittan, Graham & Mathes, Pittsburgh Pa.
Canton Combination Lock Co., Canton, Ohio.
Clafien Mfg. Co., Cleveland, O.
Deits, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co, Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H, Lockport, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingnam Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B, 398 Madison St., N. Y
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co, Laight and Canal Sts., N. Y.
Gould & Eberhardt, Newark, N. J.
Harrington, E. son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
MacKinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Machy Depot, N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machine Tools.—*See Machinery.*

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
American Locating Co., St. Paul, Minn.
Branford, Conn.
Dingee, J. H., Philadelphia, Pa.
Mordant F. S. Co., Chicago.
Norfolk & Western R. R.
Ogden, Utah.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bethlehem, Pa.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrnardt, Gustave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 31 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.

(See Alphabetical Index, Page 114.)

Selbert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R., Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston. Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y.
Belting & Packing Co. Ltd , N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon Jos. Crucible Co., Jersey City, N.J
U. S. Graphite Co., Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Dudley, W. U. & Co. Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Pokes.
Ely, Theo. J. Mfg. Co., Girard, Pa.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Kohler, F. E., & Co., Canton, O.
Winter, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Cleveland Hdw. Co., Cleveland, Ohio.
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Ely, Theo., J. Mfg. Co., Girard, Pa.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn
Waddel, Jno. Mfg. Co., Greenfield, O.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Electric Cutlery Co., 91 Chambers, N. Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Welland, Chas. 143 Chambers St., N.Y.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron F'dry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron & Steel Roofing Co., Cleveland, Ohio.
Johns, H. W Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Duplex Hanger Co., Cleveland, O
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saw Handles.
Ely, Theo. J. Mfg. Co, Girard, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N. Y.
National Saw Co., 96 Reade St., N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co, Fitchburg, Mass.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N. Y.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hdw. Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—*Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Belleville Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila.
The Phoenix Iron Co., Phila., Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henley, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Skylights
Plenty Horticultural & Skylight Wks., 145 Liberty St., N. Y.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows, Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Cary, Alanson, 240-242 W. 29th St., N. Y.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Hardsley, J., 149 & 151 Baxter St., N.Y
Chicago Spring Butt Co., Chicago, Ill
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co, Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co, Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth Mass.
Titchener, E. H. & Co., Binghamton N. Y.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co, Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
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Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
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Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa
Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stove Polish.
Raven Stove Polish Co., Chicago, Ill.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
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J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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Atlas Tack Corporation, Boston, Mass
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

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Testing Machines.
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Testing Laboratories.
Riehle Bros. Testing Mch. Co., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Tire Cement.
Am. Trading Co., 182 Front, st., N. Y.

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
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Montgomery & Co., 105 Fulton St., N. Y.
Richardson, C. F., Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Sliver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co., Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg, Pa.
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills. *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

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Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.

Washers.
Haskell, Wm. H. Co., Pawtucket, R. I.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Water Heaters.
Kemp, Clarence M., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Miller & Van Winkle, 102 Walker St., N. Y.
New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff N. Y.
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth Holders.
Hamilton-Rankin Hdw. Co., Arkansas City, Kan.

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

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Wire Nails.
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Baackes Wire Nail Co., Cleveland, O,
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill,
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches, *Manufacturers of.*
American Saw Co. Trenton, N. J.
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Goodell Co., Antrim, N. H.
Rhode Island Tool Co., Providence, R.I
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

Wringers.
Colby Wringer Co., Montpelier, Vt.

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Edes, Edw. L., Plymouth, Mass.

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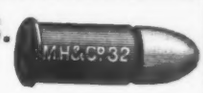

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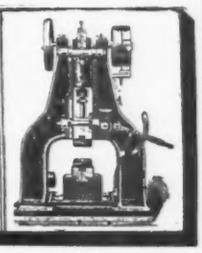

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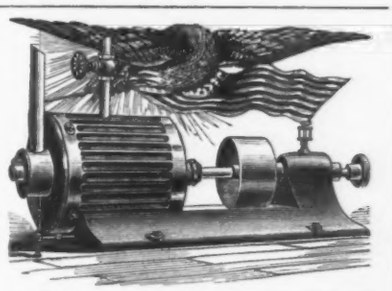

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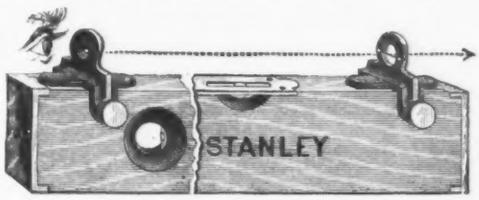

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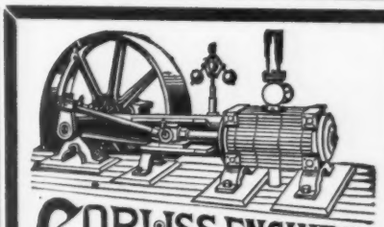

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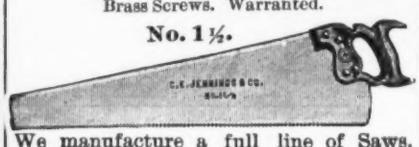

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Vol. XLIX: No. 22. *New York, Thursday, June 2, 1892.* $4.50 a Year, including Postage. Single Copies, Ten Cents.

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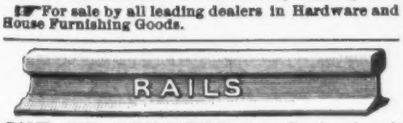

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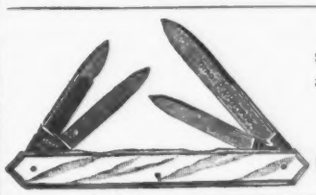

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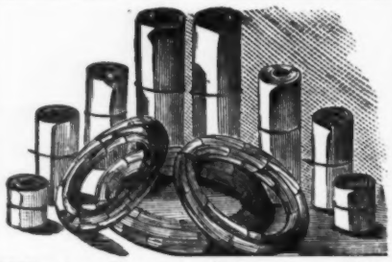
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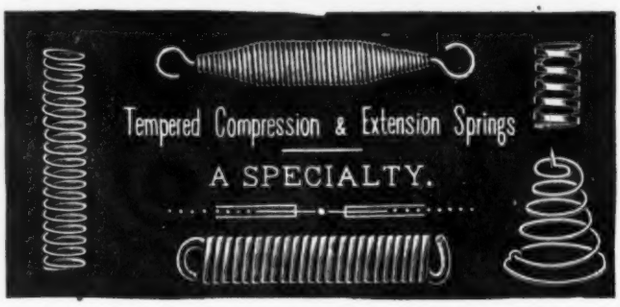

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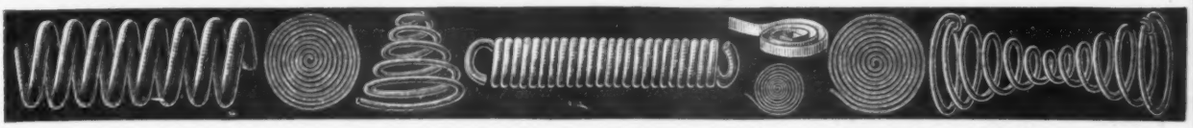

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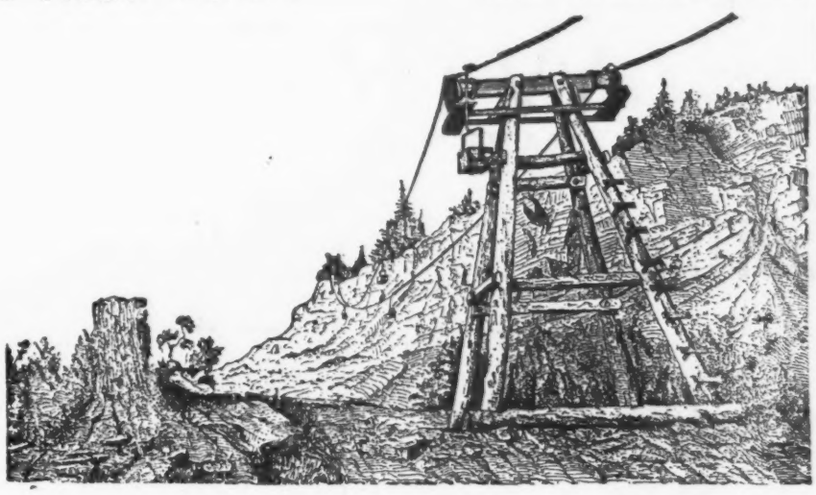

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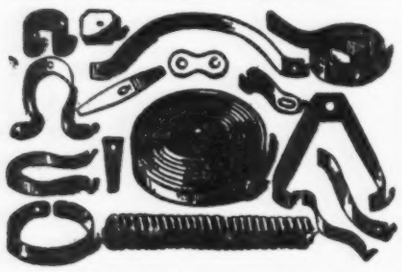

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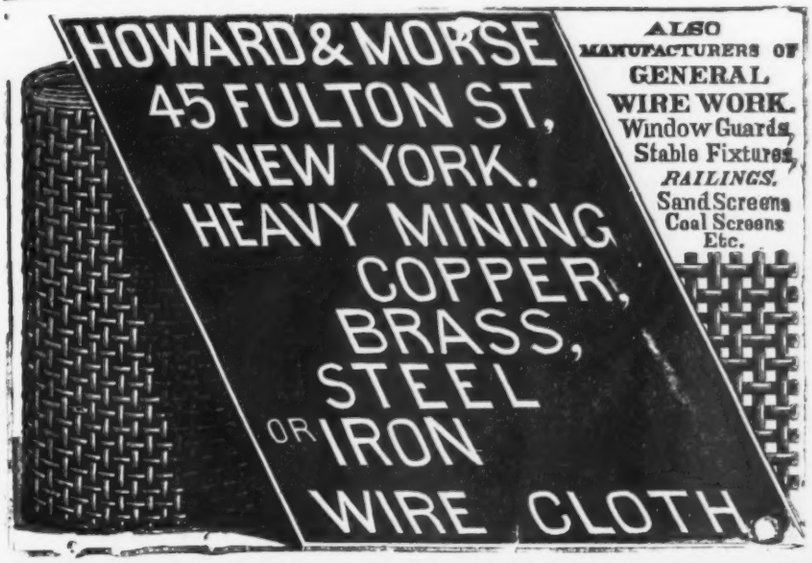

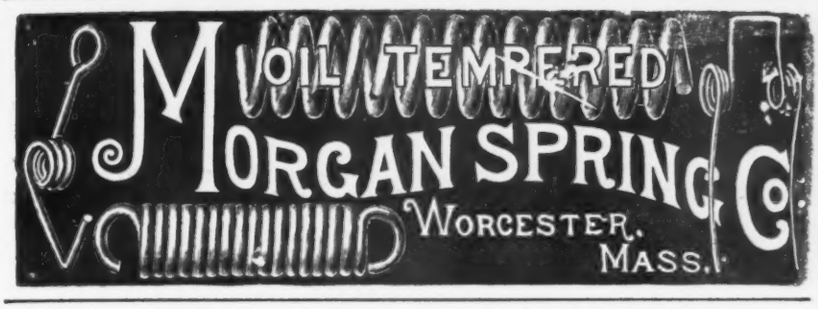

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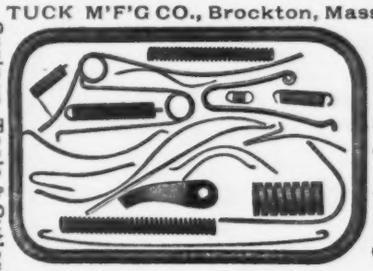

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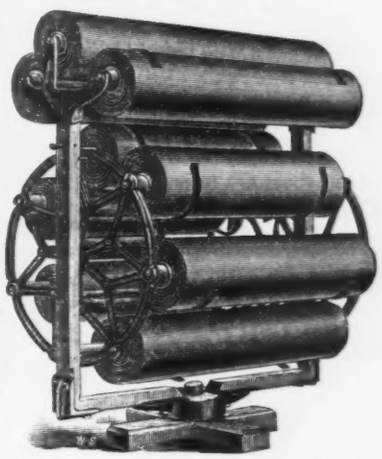

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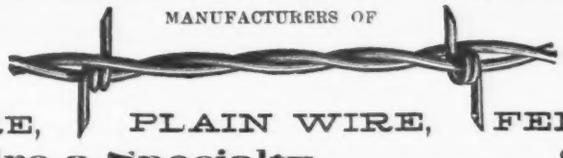
BARBED  WIRE,

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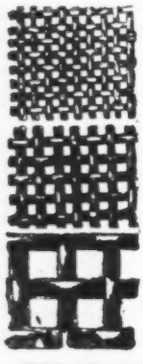

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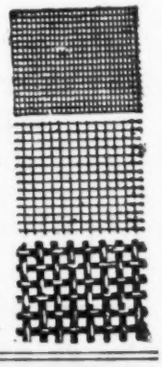

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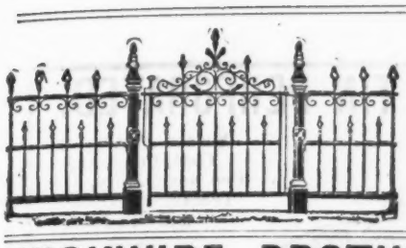

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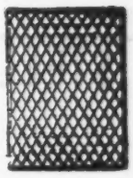

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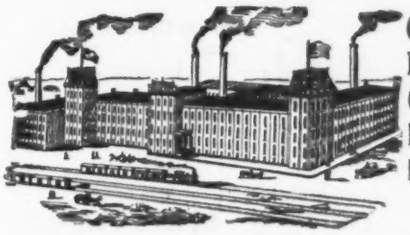

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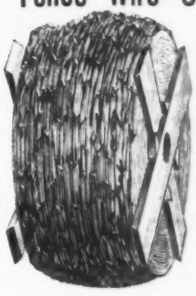

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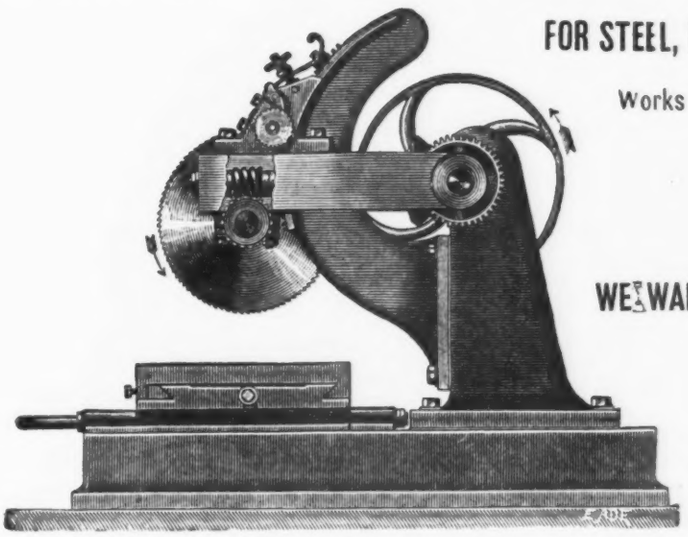

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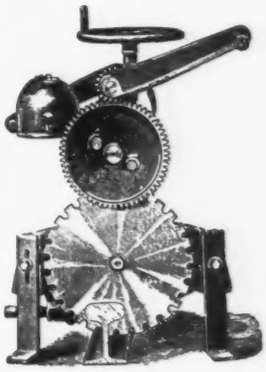

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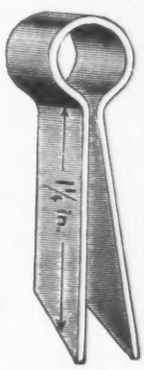

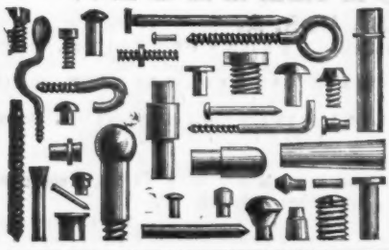

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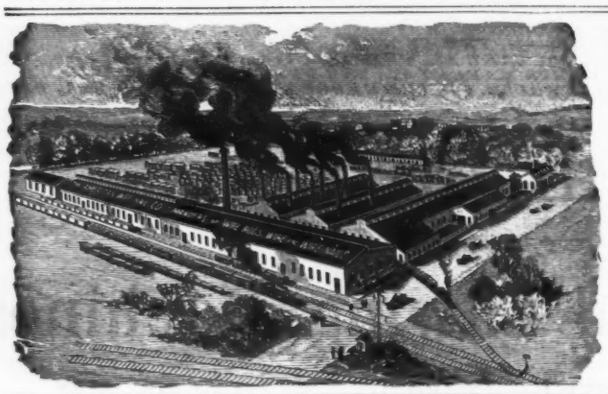

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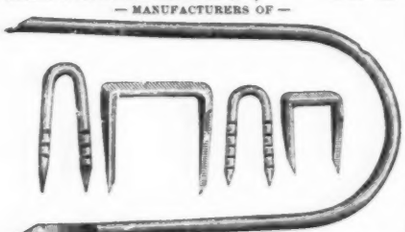

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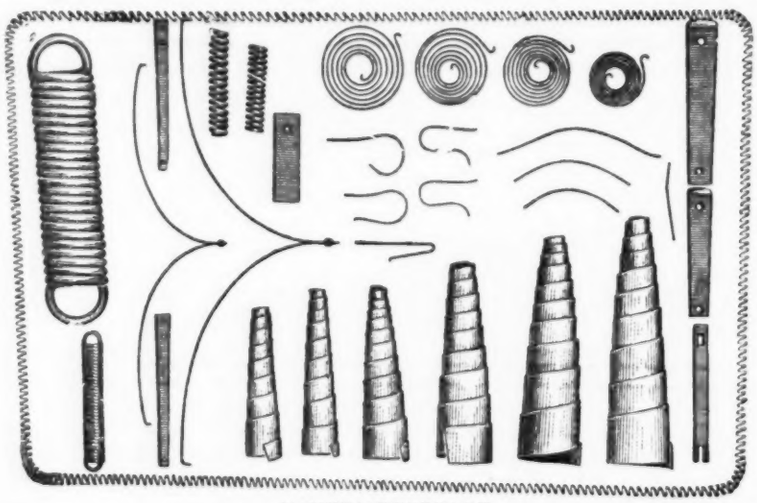

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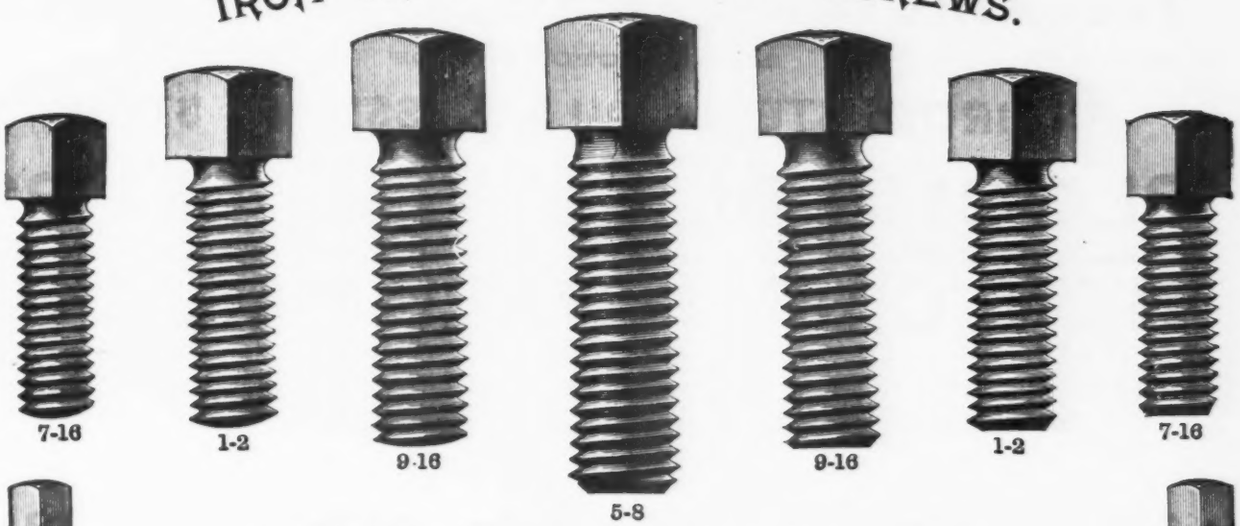

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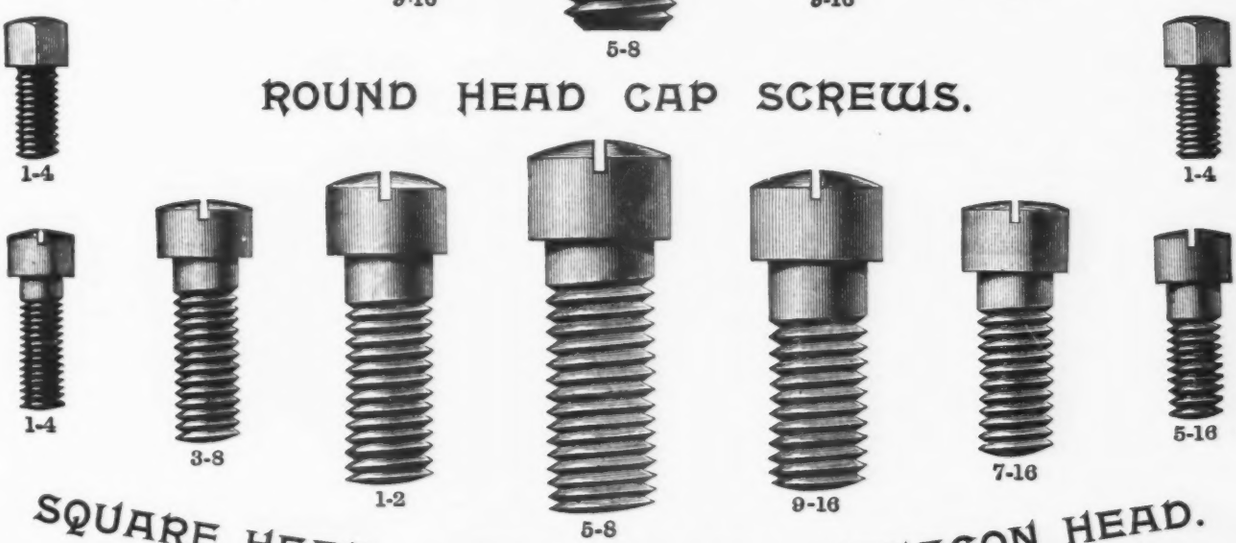

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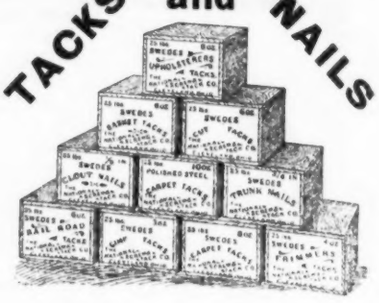

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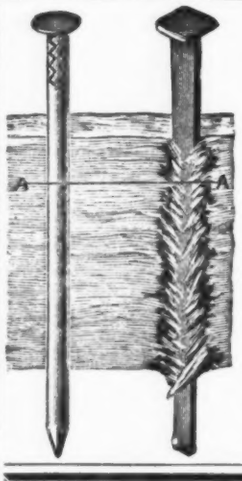

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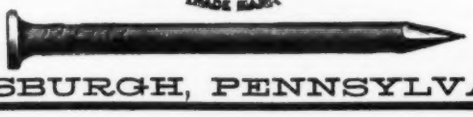

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COLD FORGED PRODUCTS.

"Spur Pointed" Wood Screw.

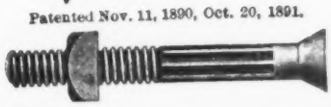
Patented May 10, July 19, 1887; Oct. 29, 1889; Aug. 19, Oct. 21, 1890; April 7, May 12, 1891.

ITS ADVANTAGES ARE:

Stronger than a cut screw.
Forged nick.
Requires the use of only one bit.
Inserted easier.
Increased holding power.
Centralized point.
Is cold forged, and entire surface has a metallic skin.

Samples Sent on Application.

Patented Nov. 11, 1890, Oct. 20, 1891.



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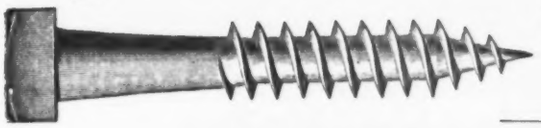

Cold Forged Coach Screws.

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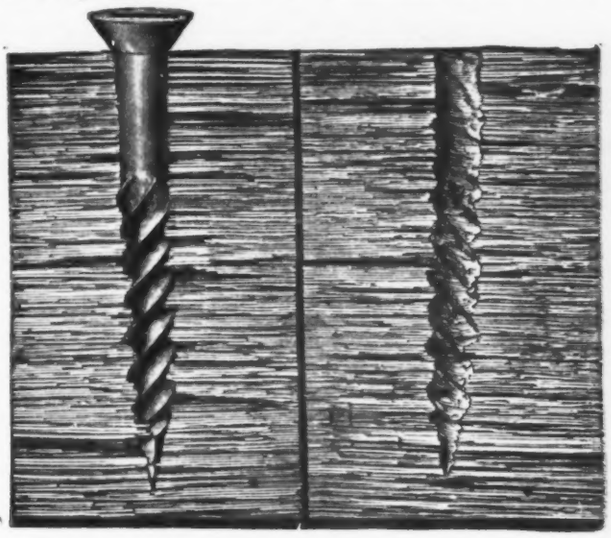
"ROGERS' DRIVE SCREWS."

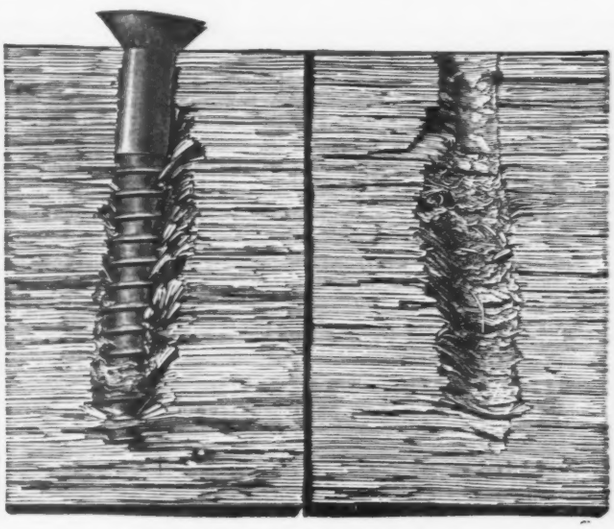
Patented May 10, 1887; July 19, 1887; July 10, 1888. Other patents pending.

List prices, same as common iron wood screws. Discount for Flat Heads, 82½%.



THE "ROGERS DRIVE SCREW,"

Driven with a hammer its entire length.



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As ordinarily inserted, *i. e.*, driven two-thirds of its length with a hammer and the balance with a screw-driver. Fibres of the wood are necessarily broken, and holding power of screw much impaired.

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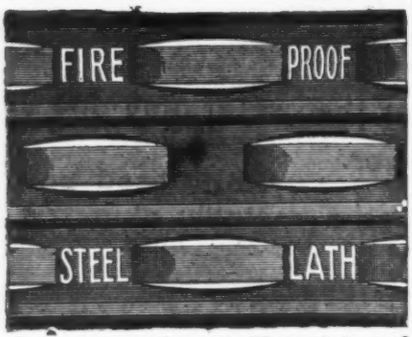

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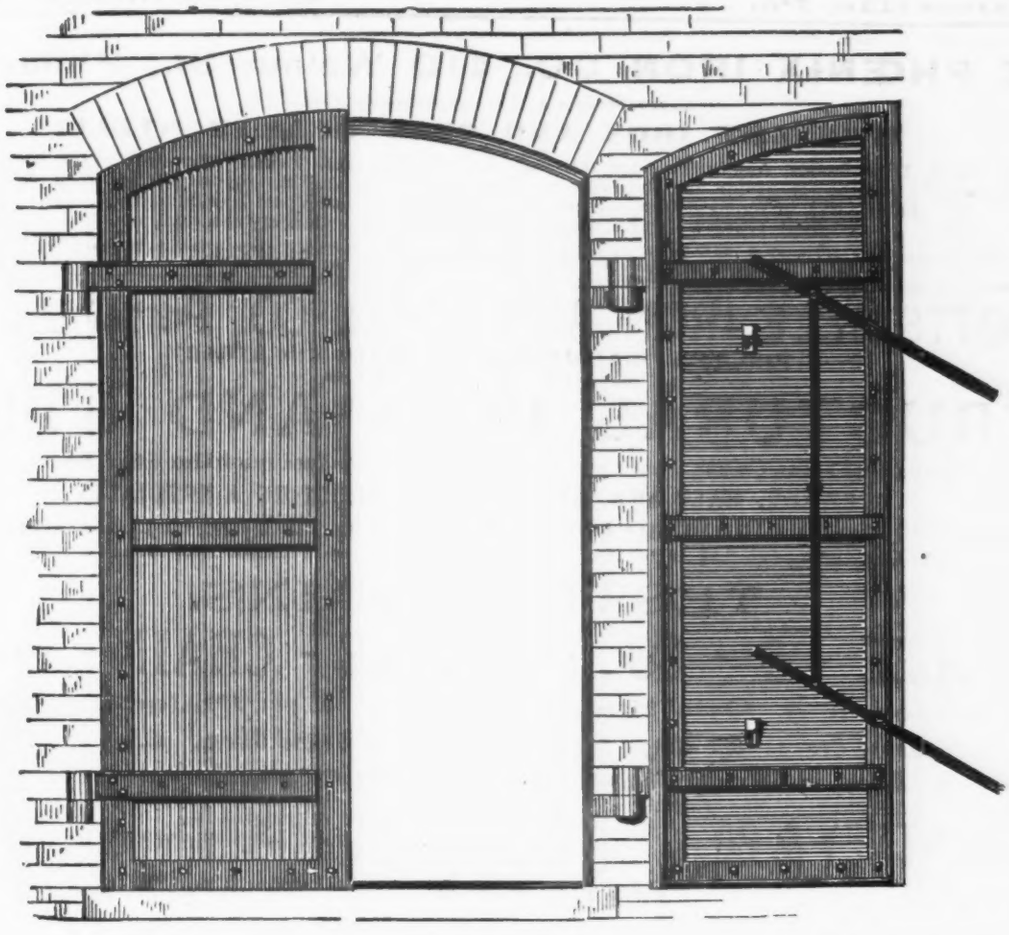

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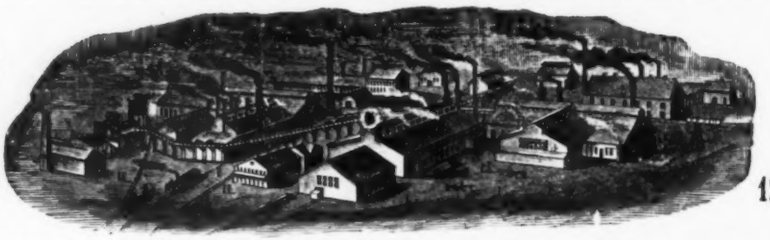

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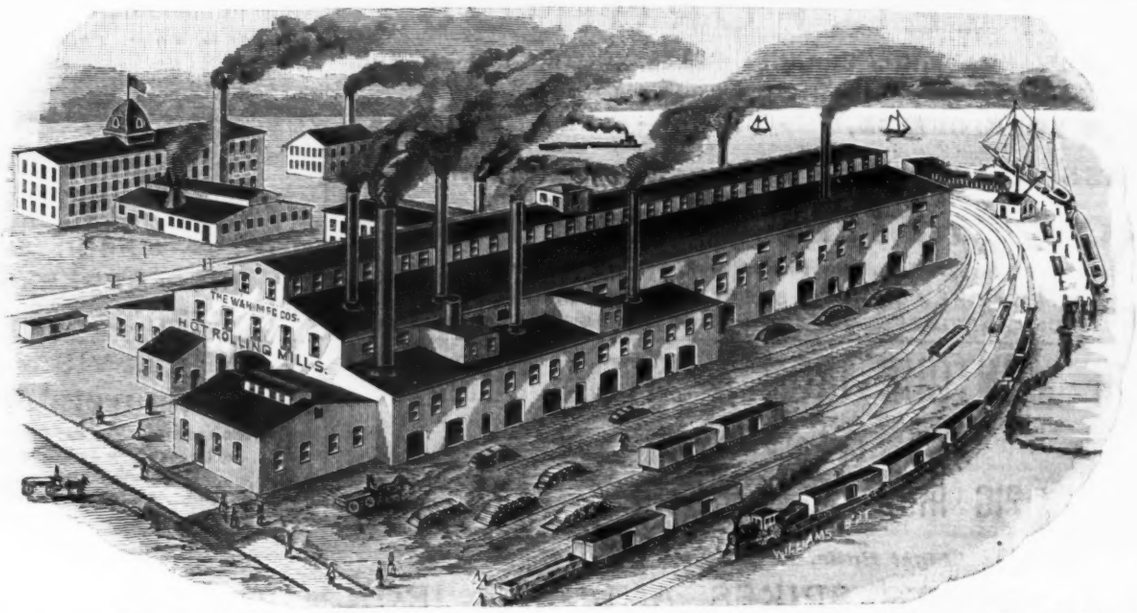

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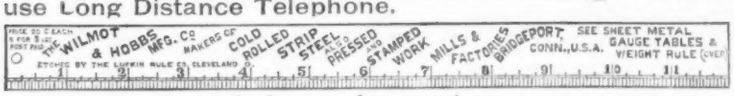

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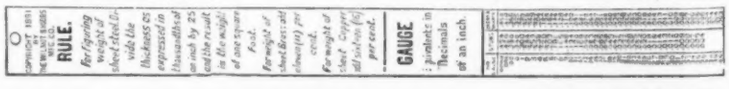

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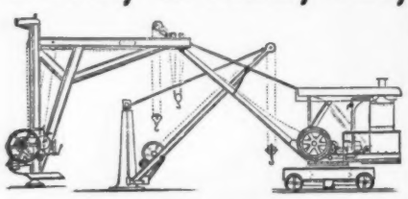

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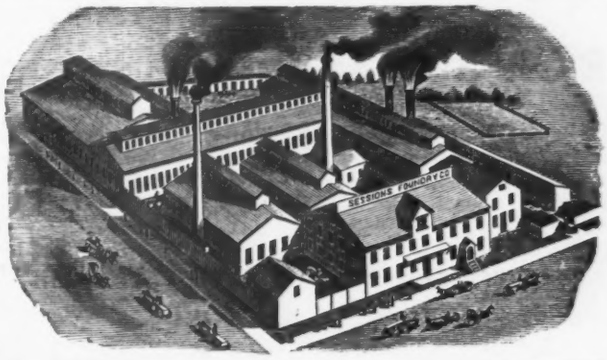

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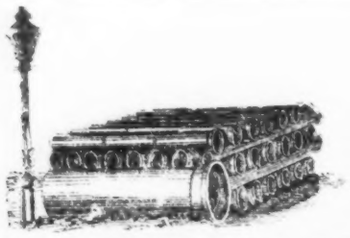

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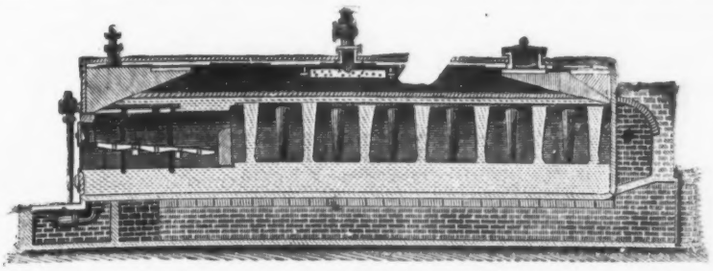

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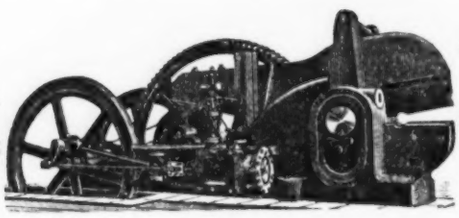

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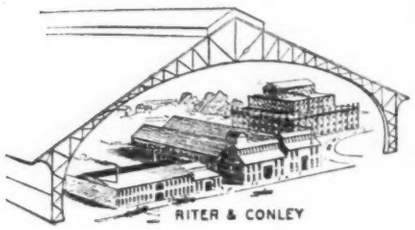

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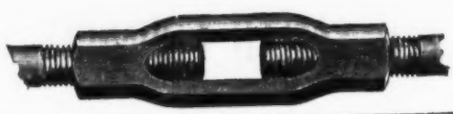

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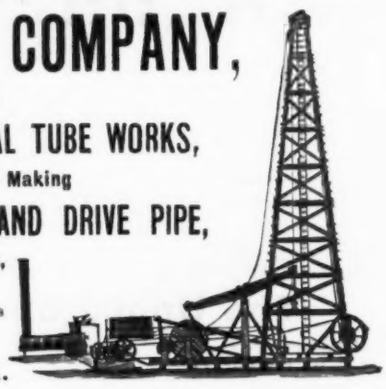

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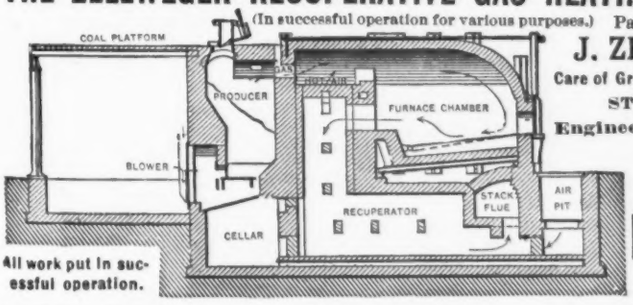

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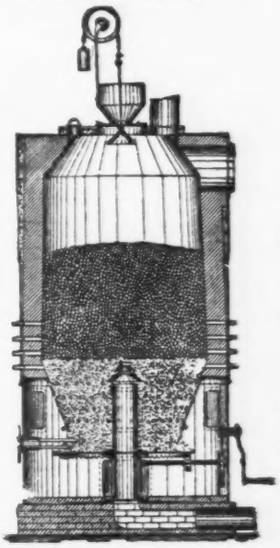

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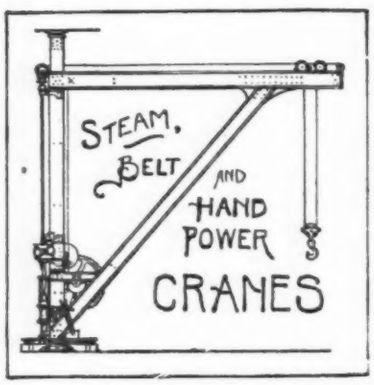

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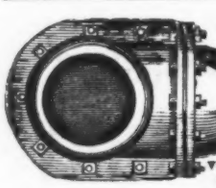

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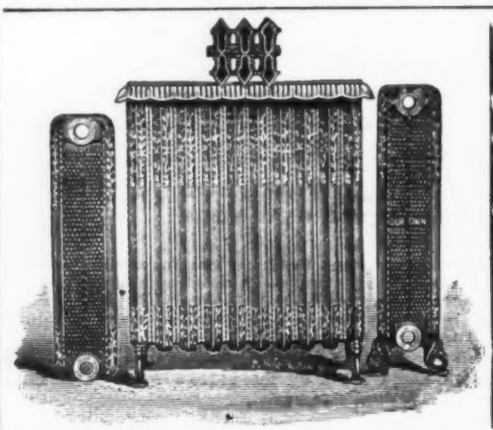

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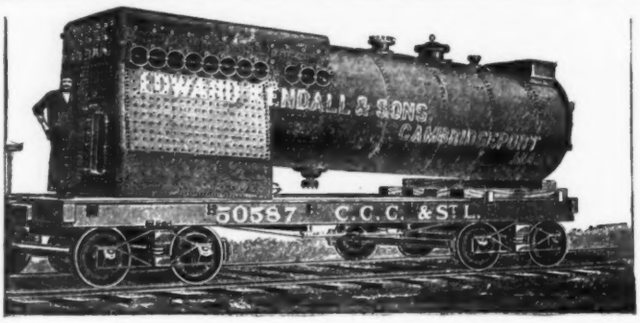

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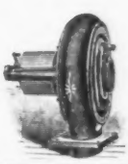

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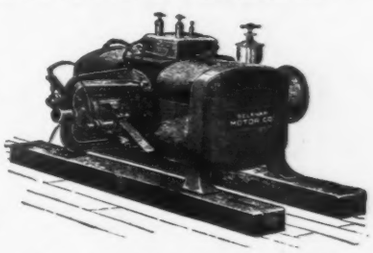

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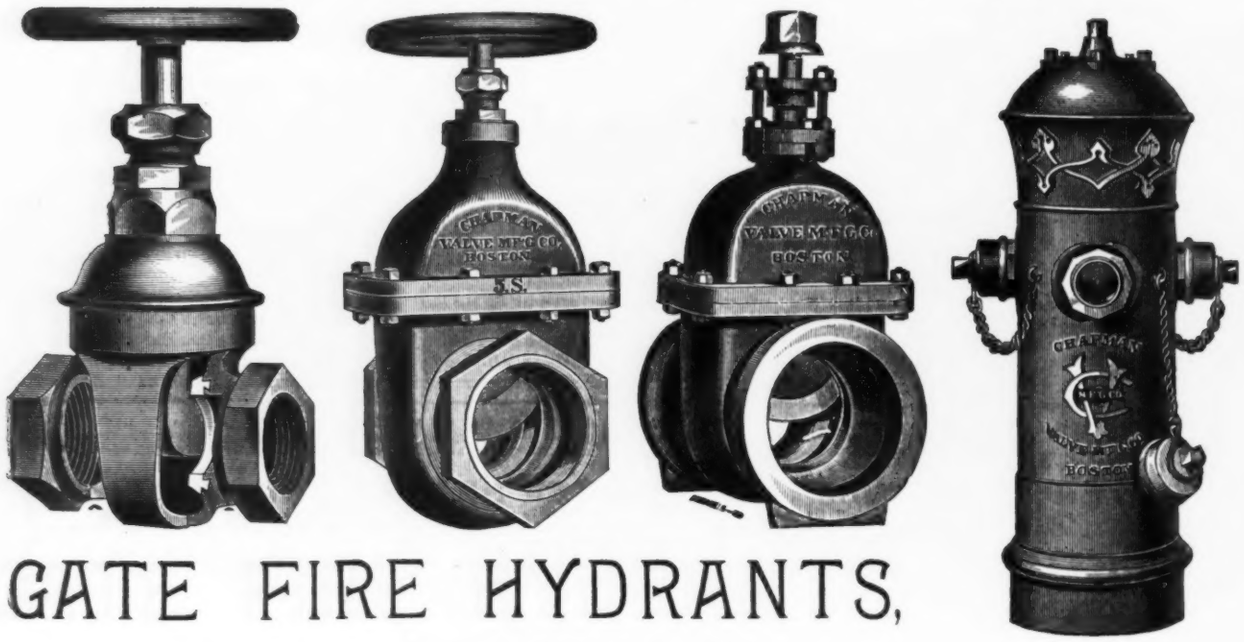

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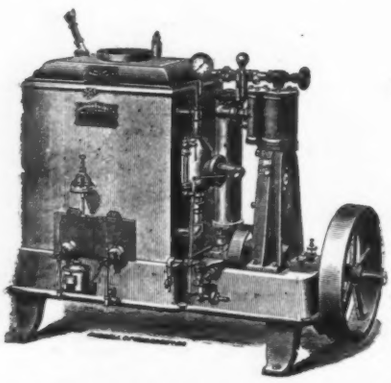

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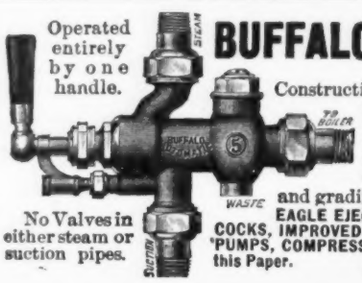

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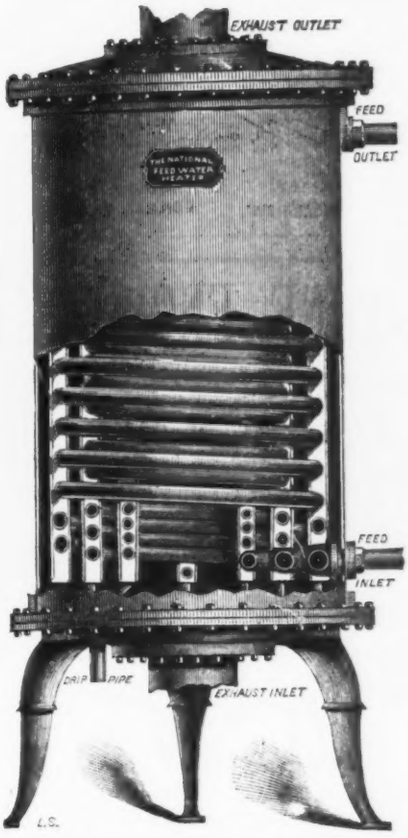

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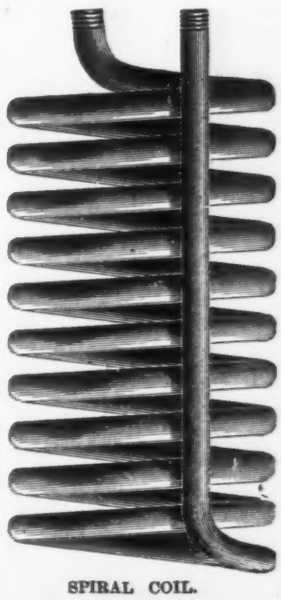

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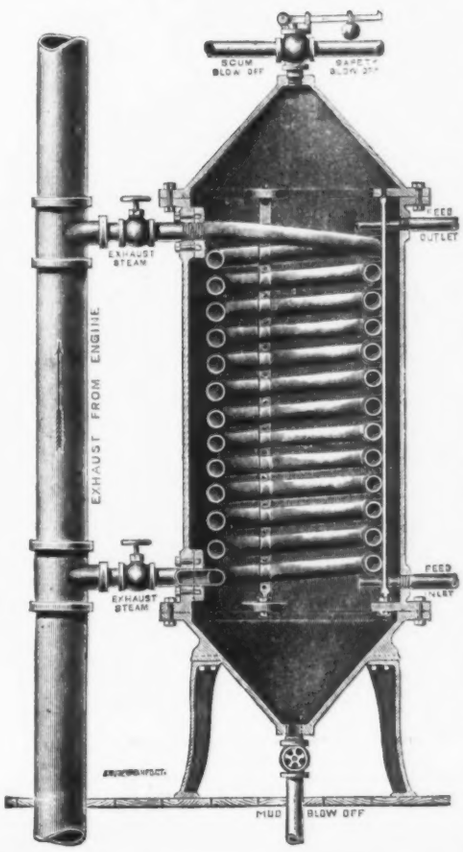

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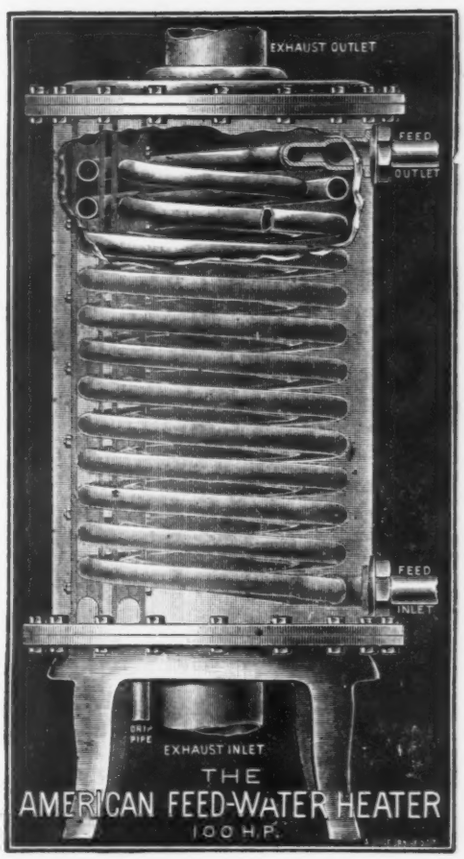

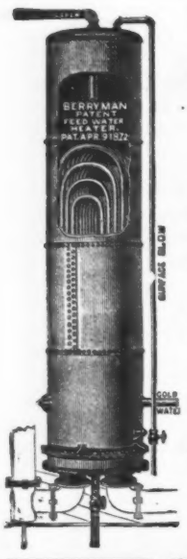

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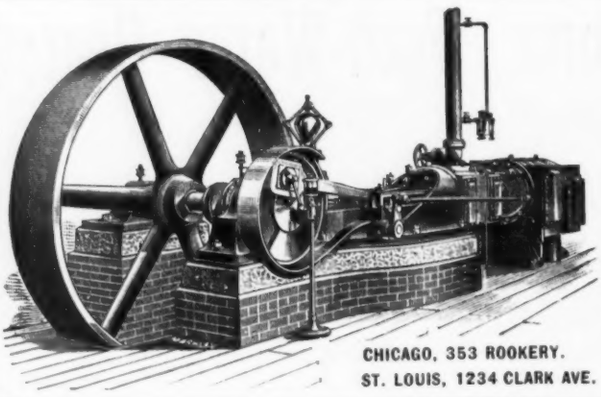

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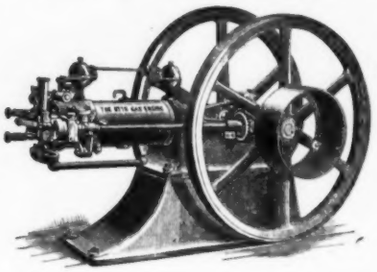

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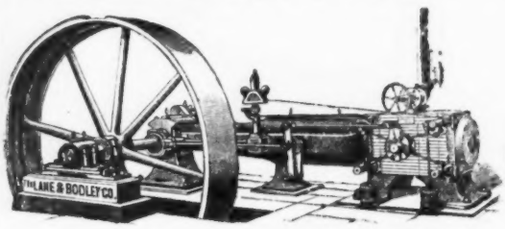

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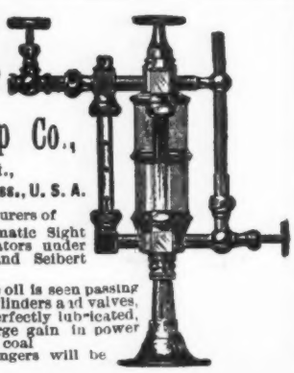

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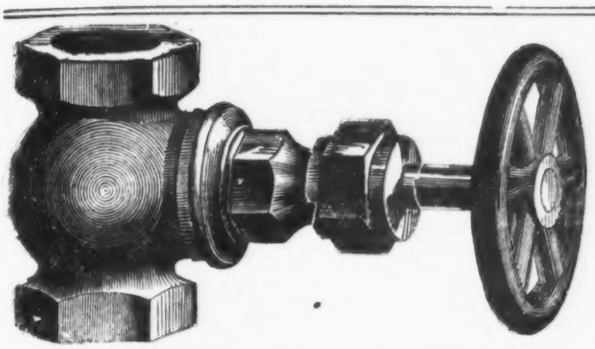

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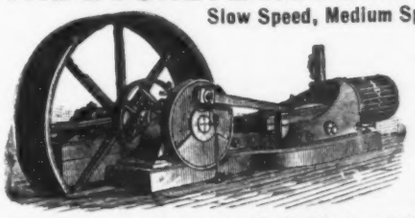

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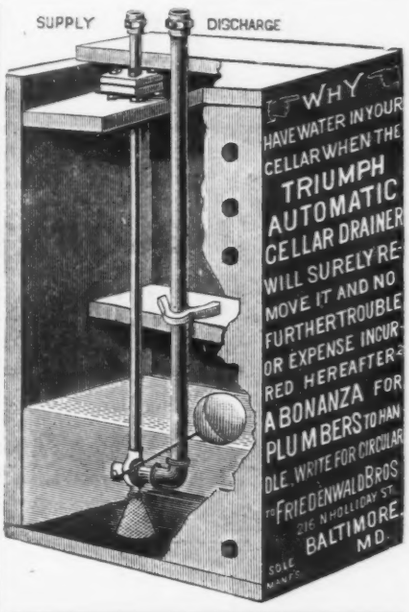

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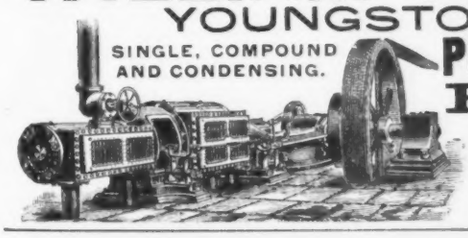

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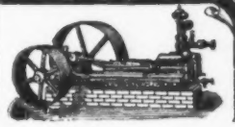

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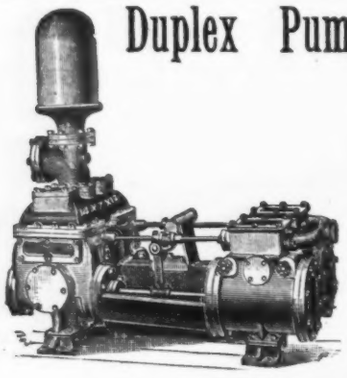

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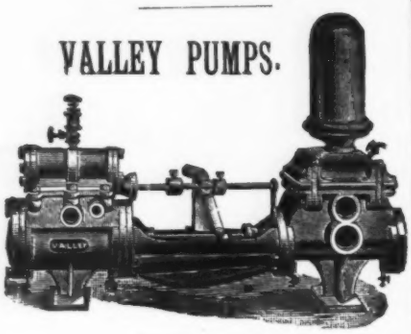

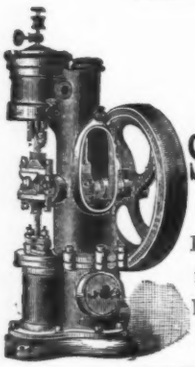

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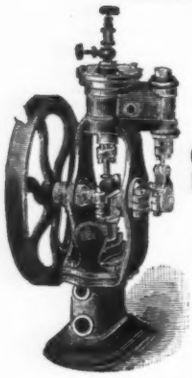

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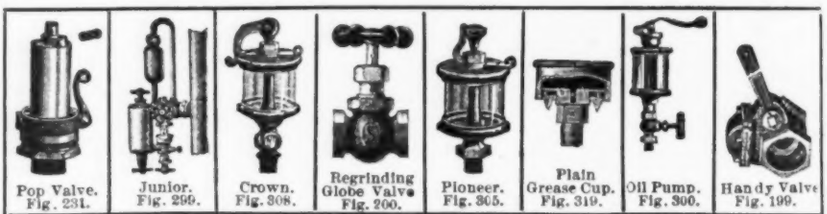

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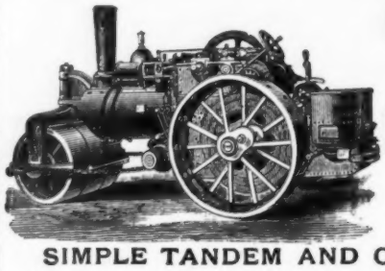

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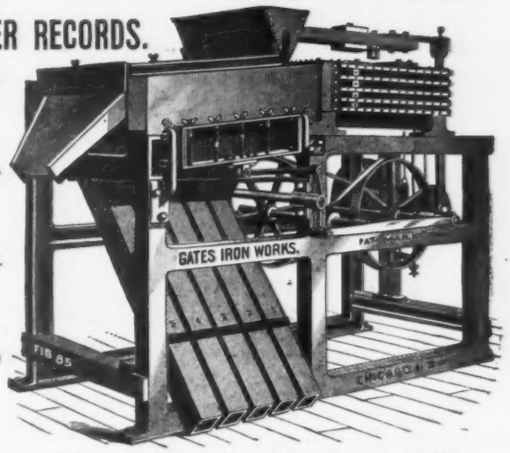

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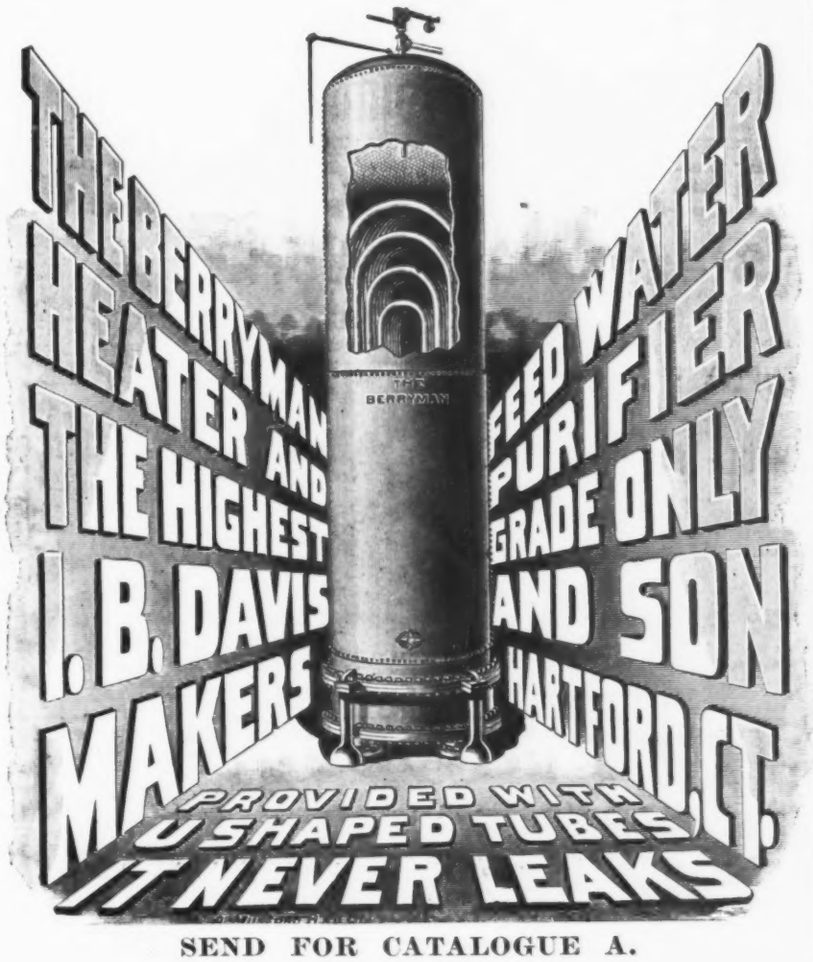

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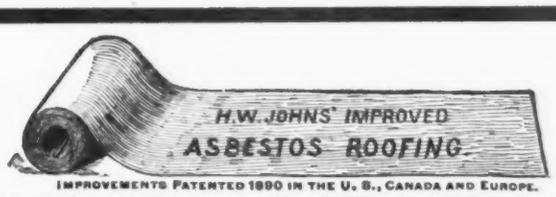

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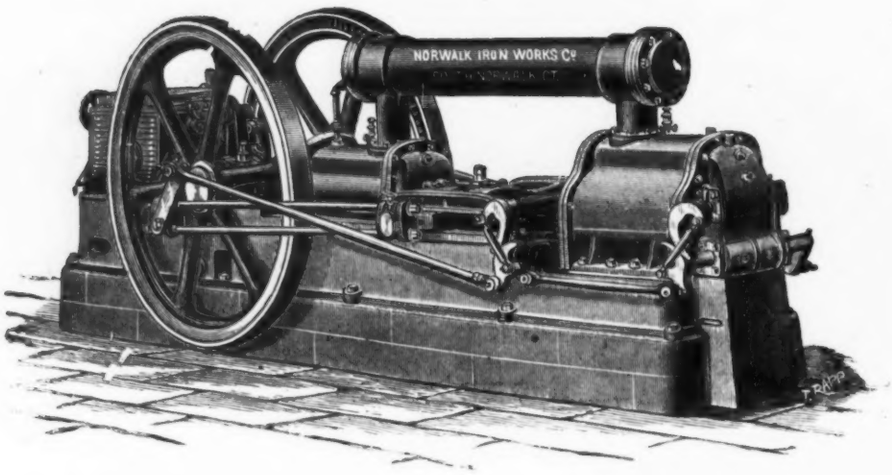

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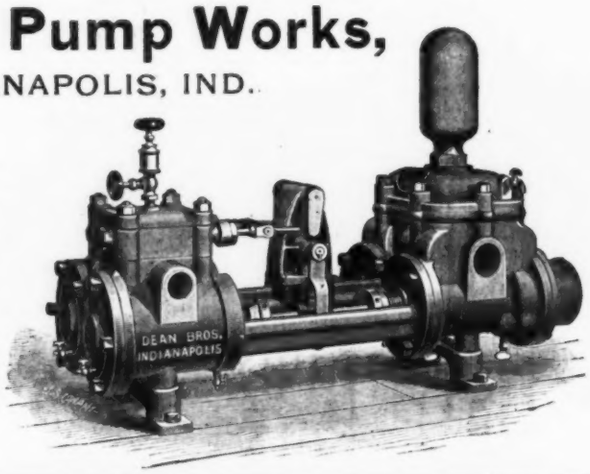

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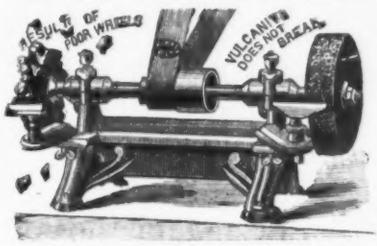

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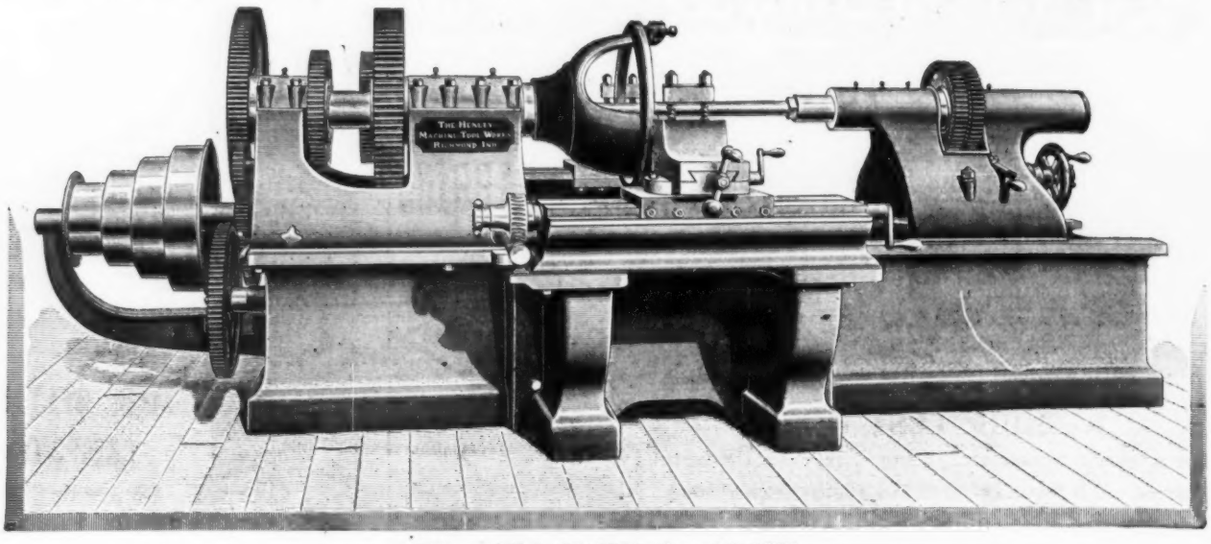

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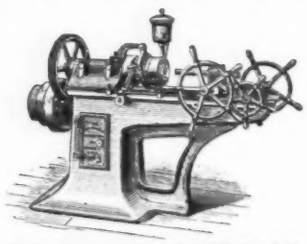

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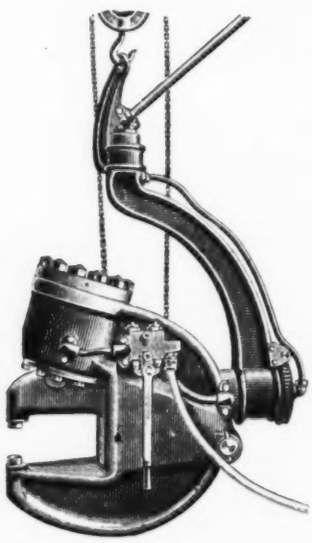

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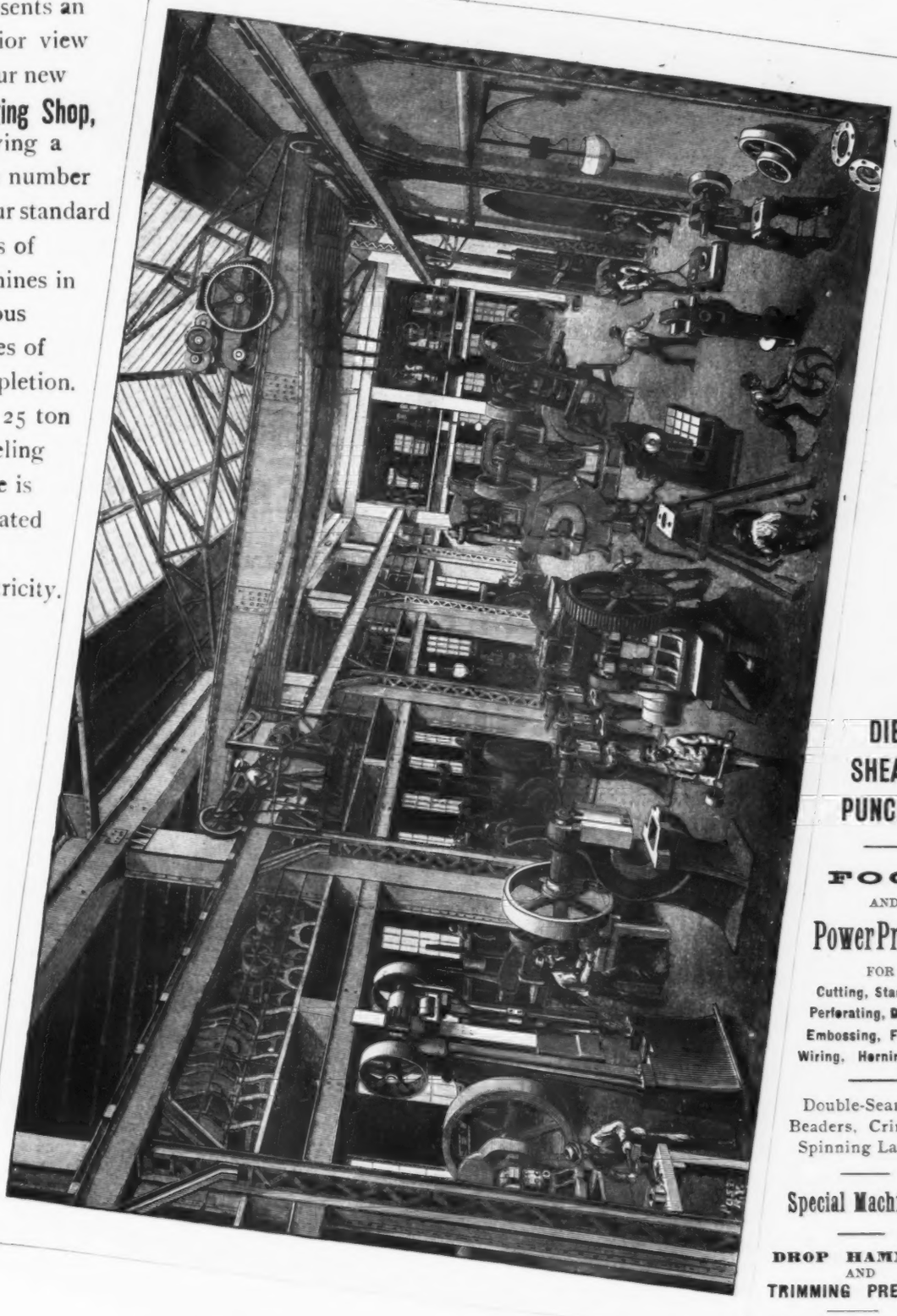

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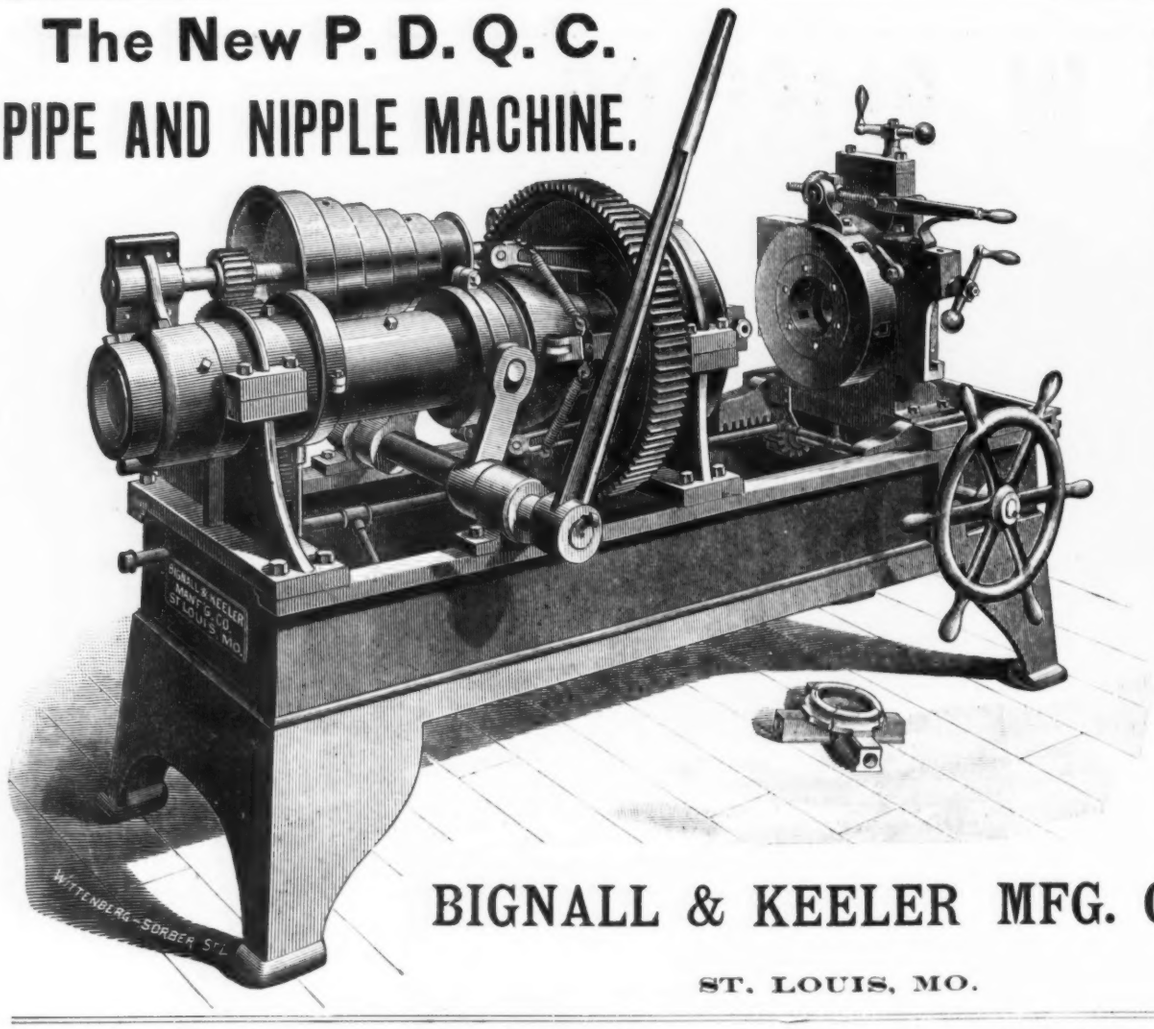

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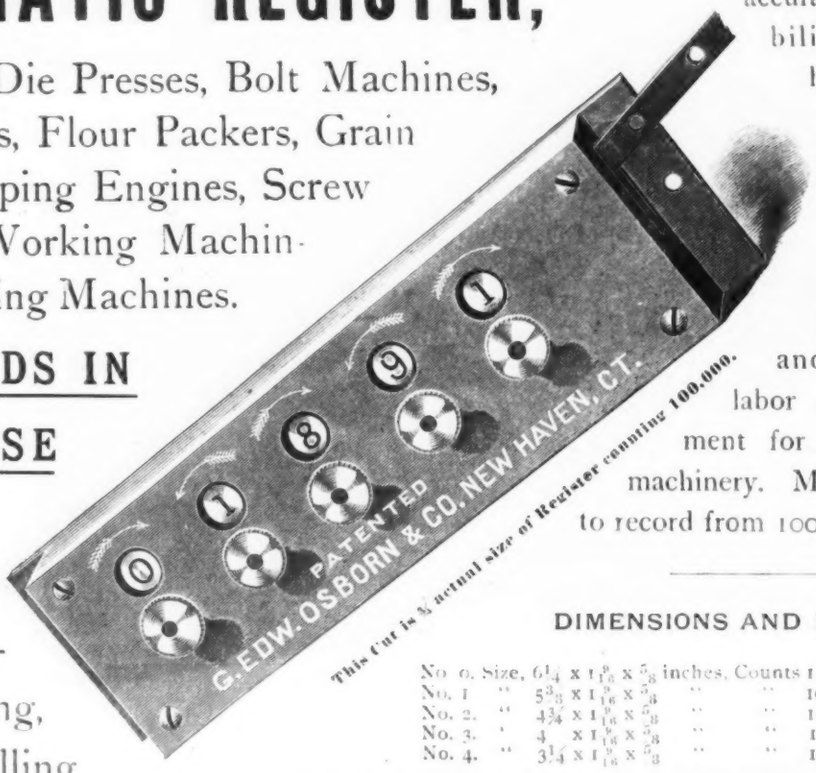

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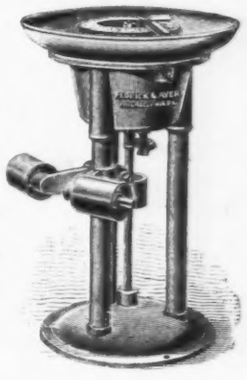

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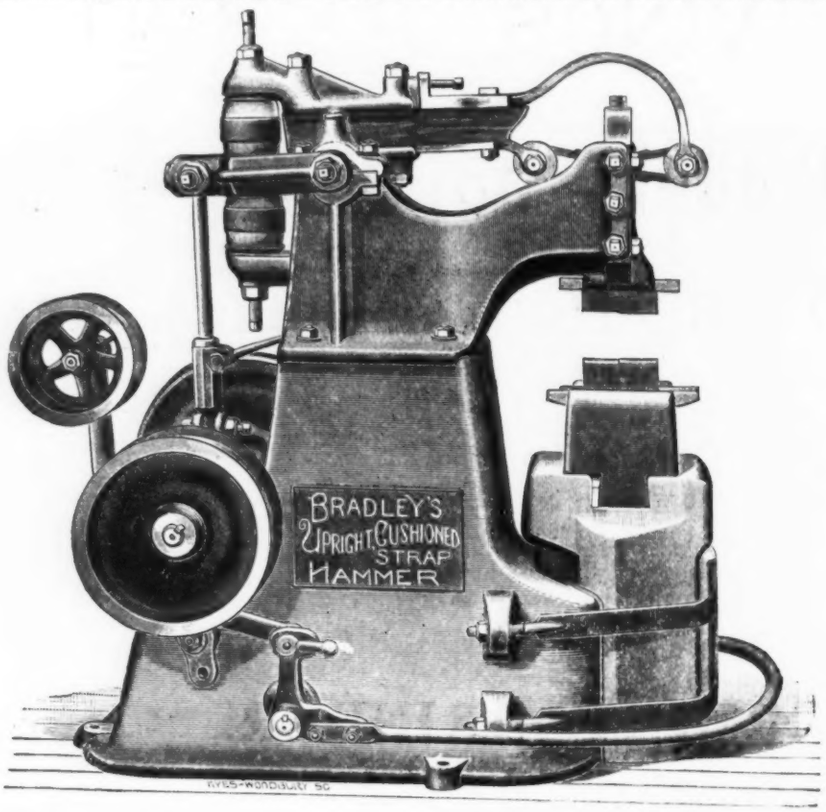

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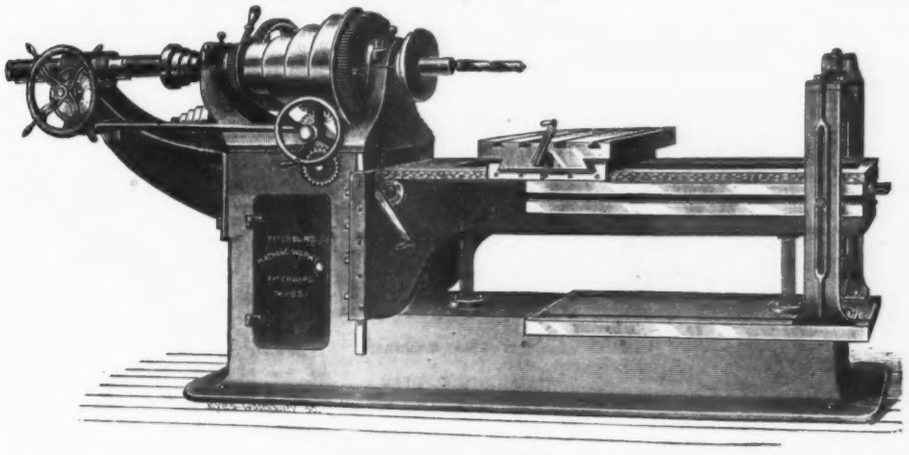

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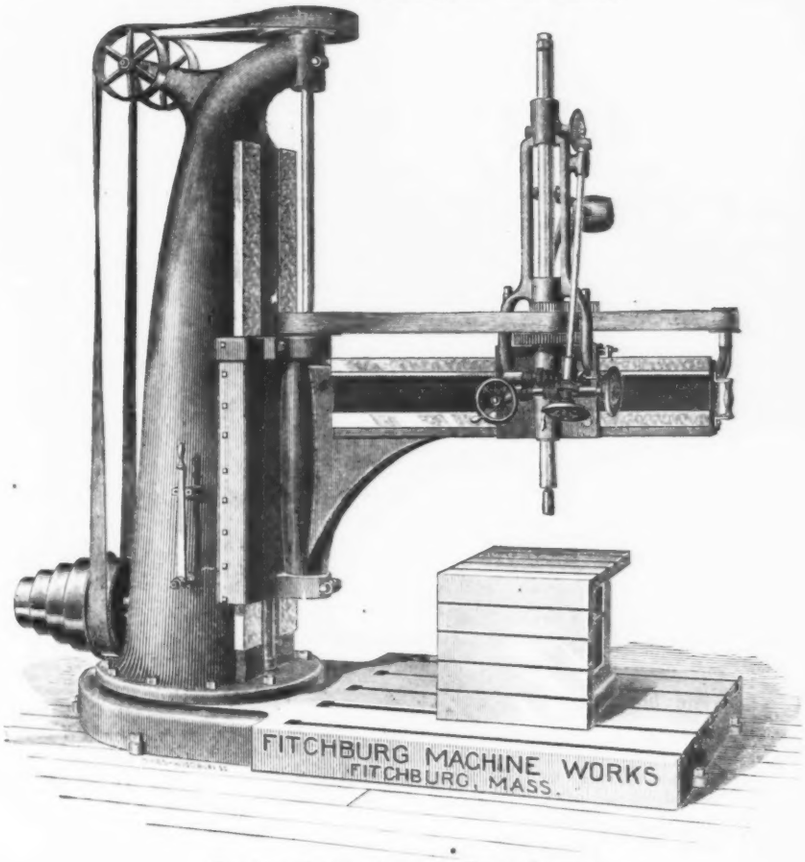

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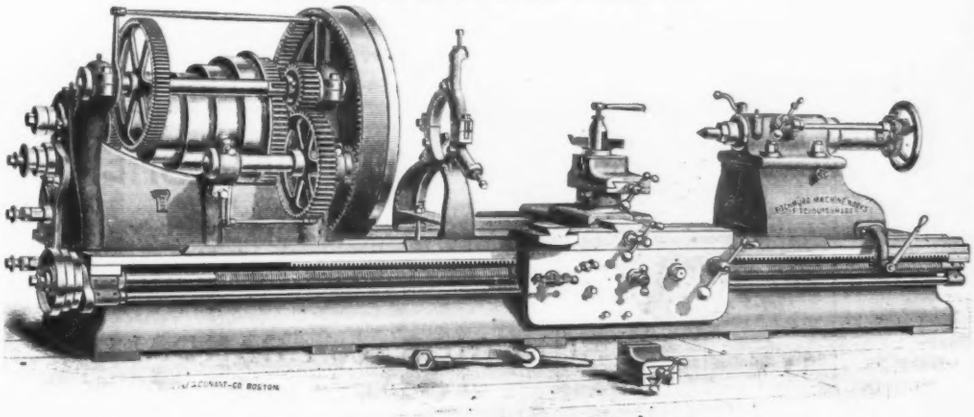

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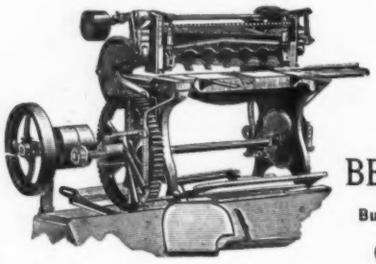

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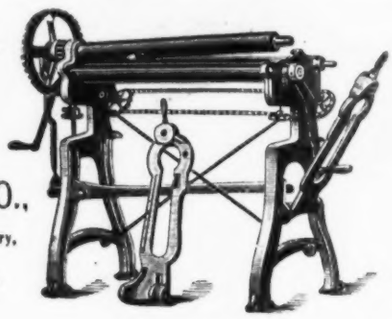

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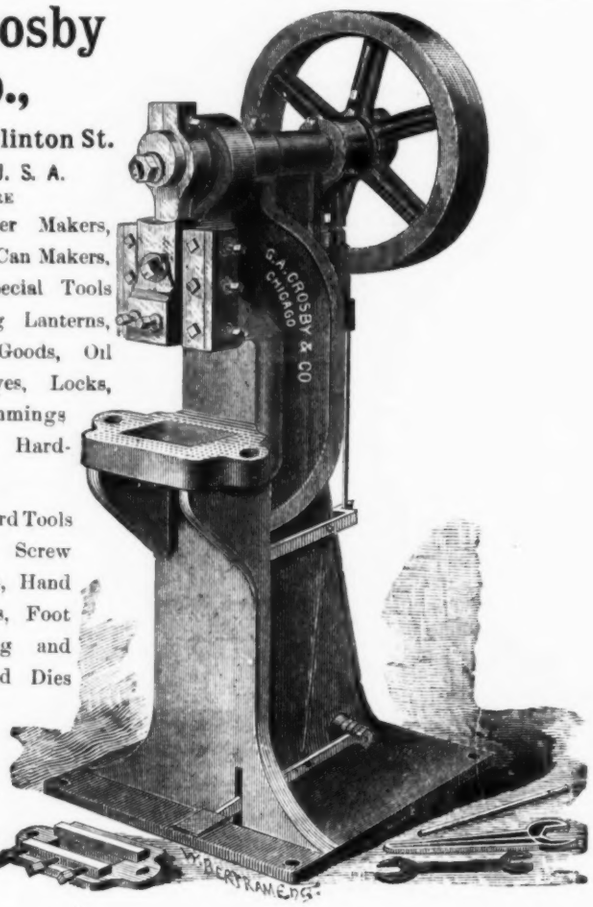

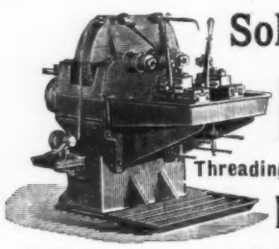

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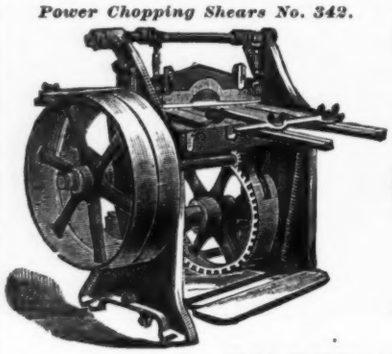

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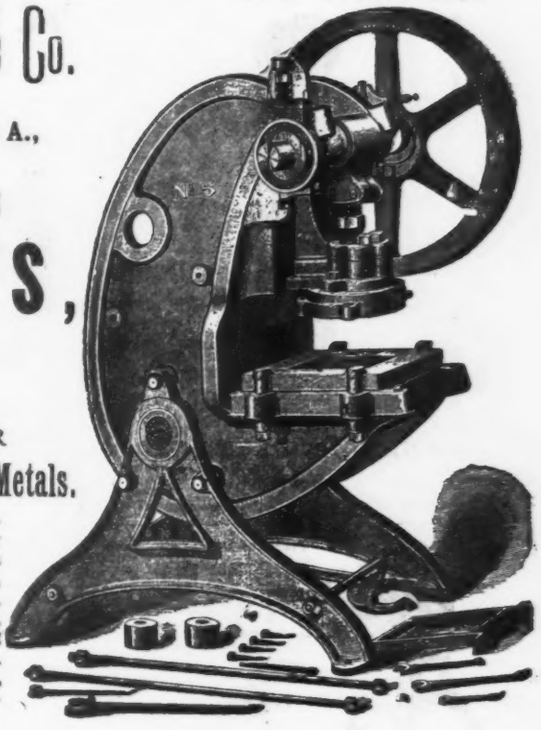

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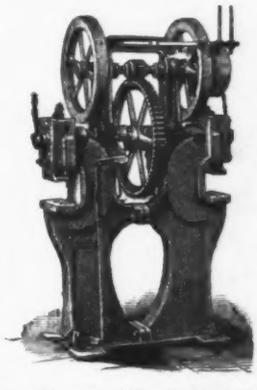

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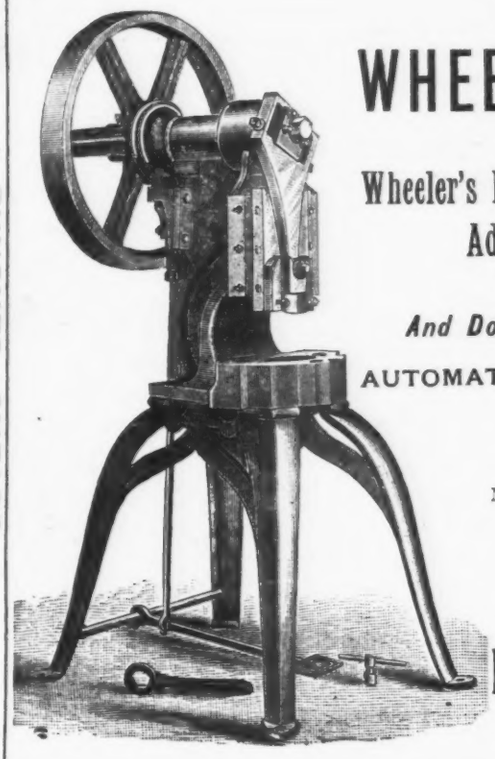

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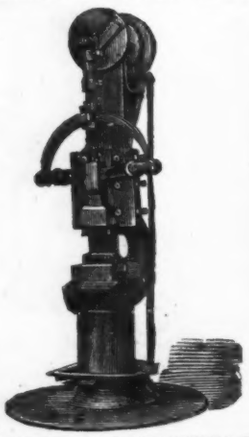

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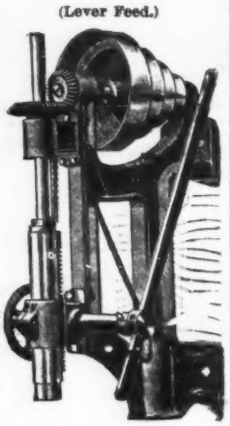

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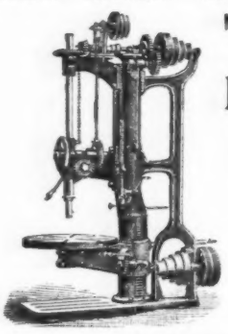

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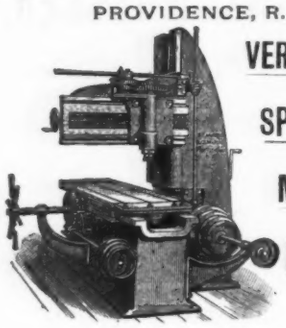

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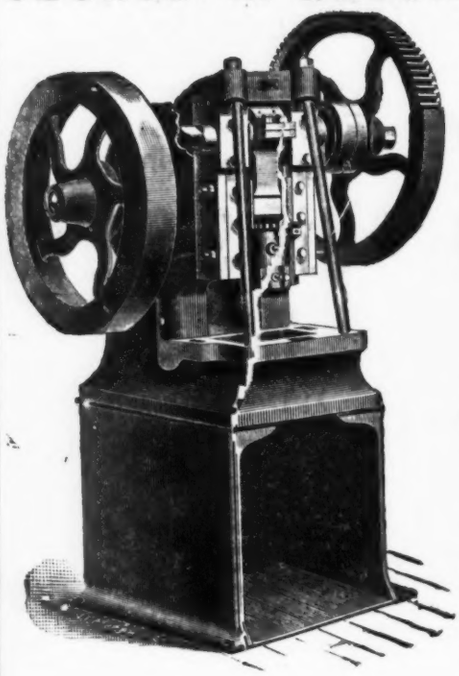

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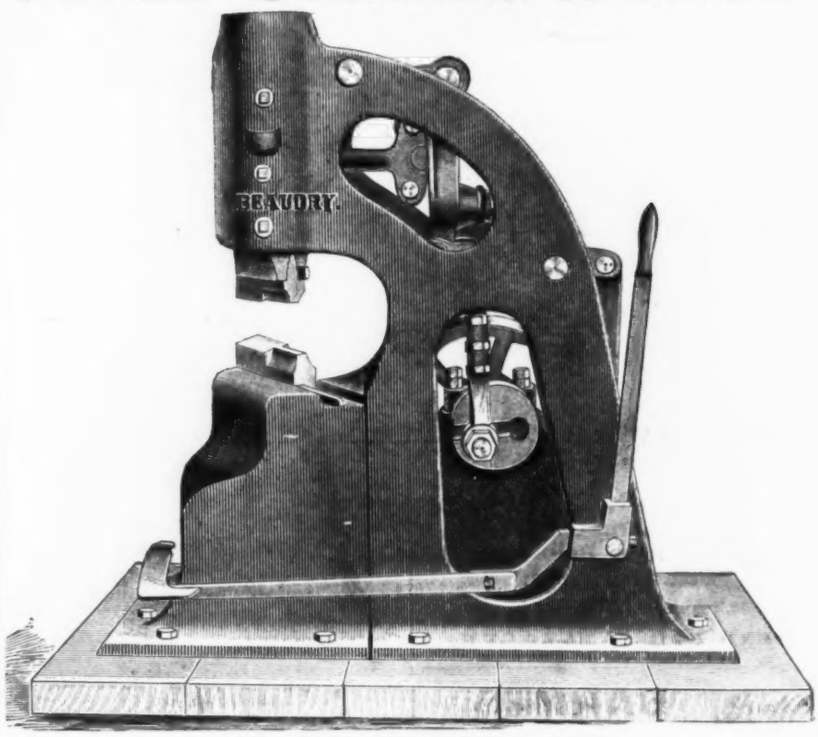

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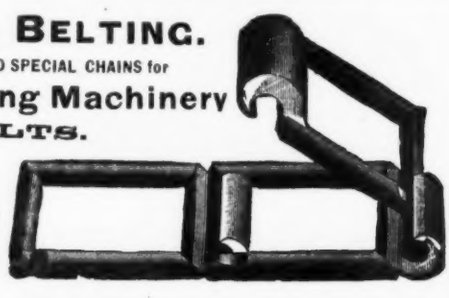

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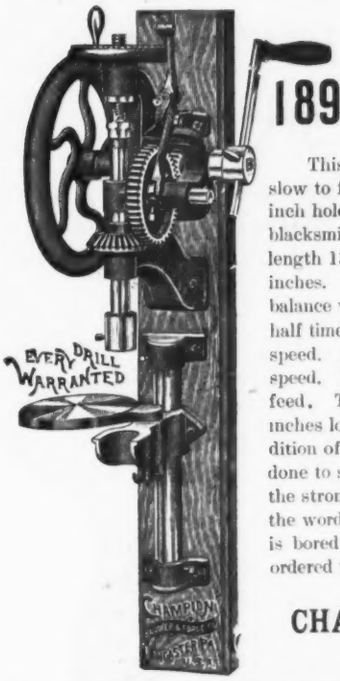

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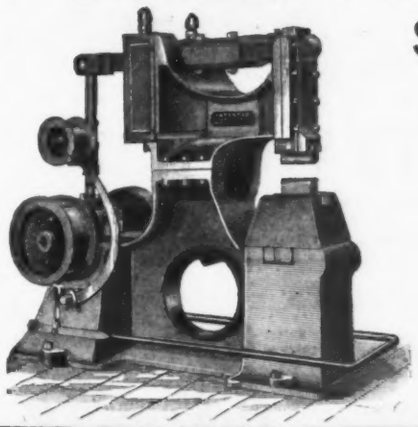

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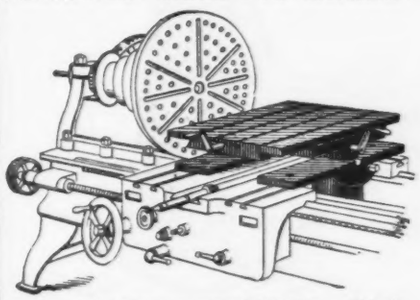

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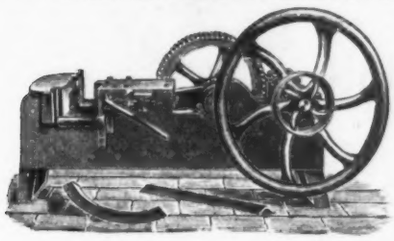

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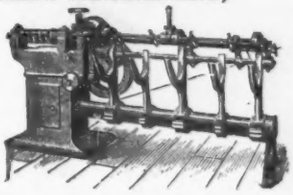

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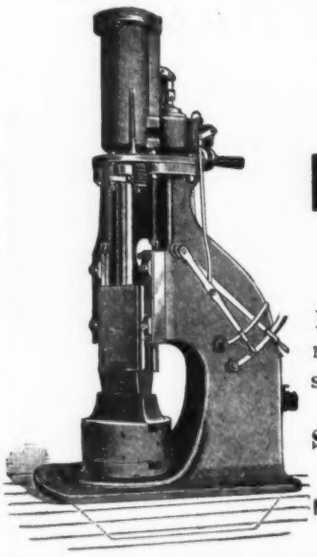

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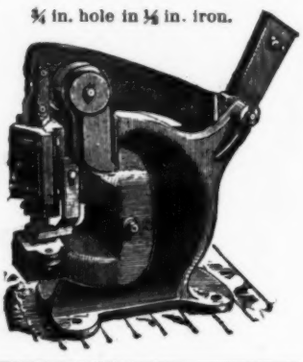

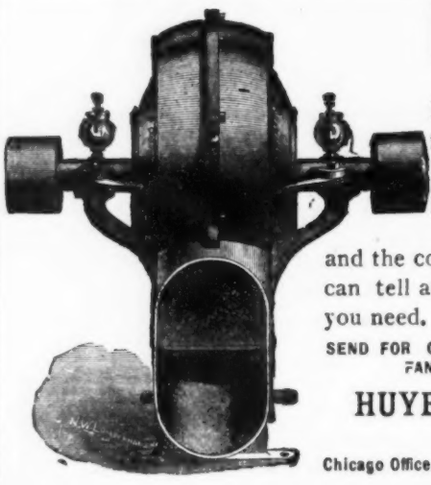

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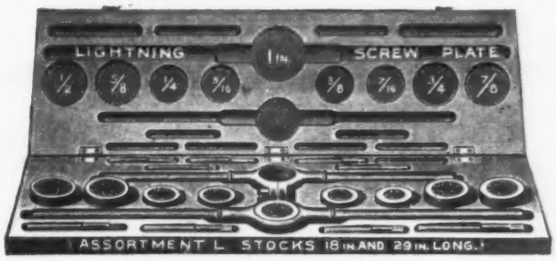

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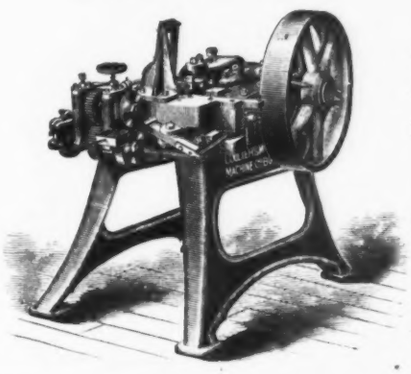

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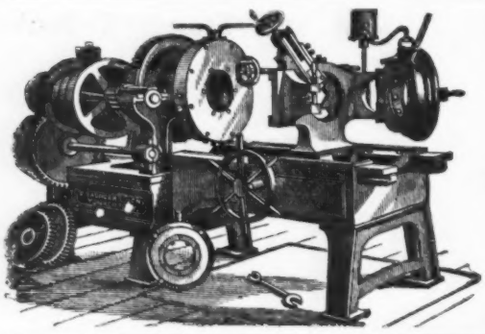

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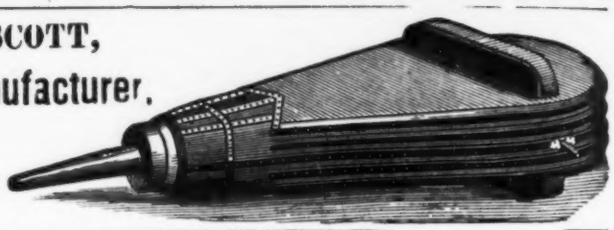

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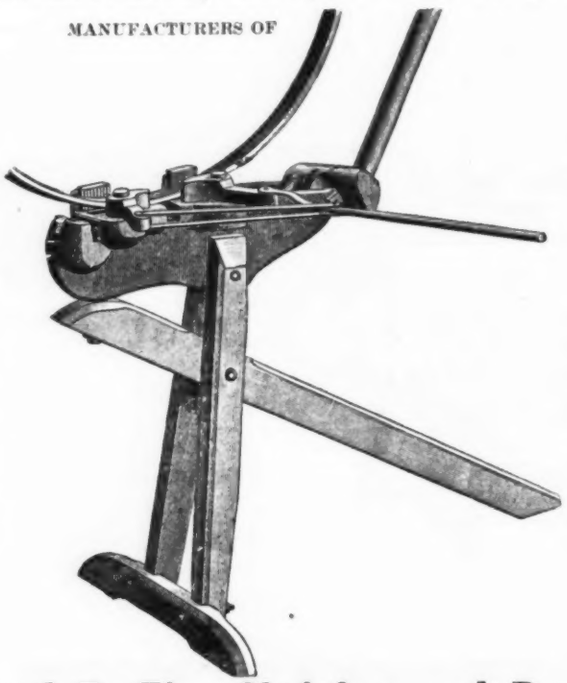

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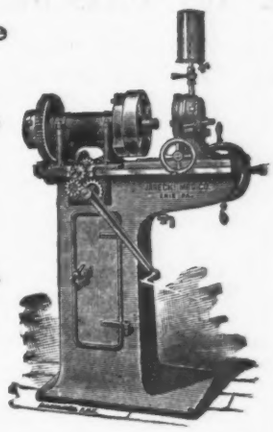

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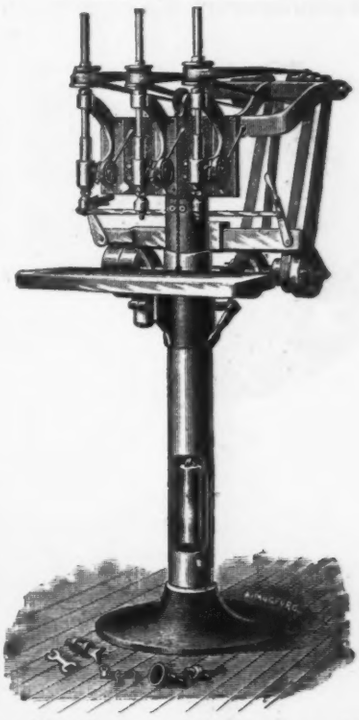

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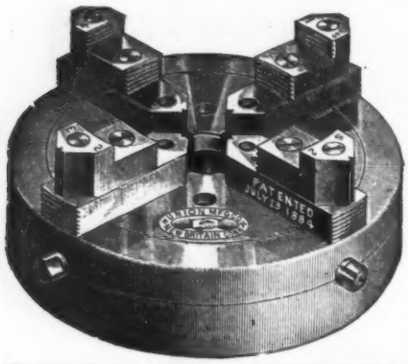

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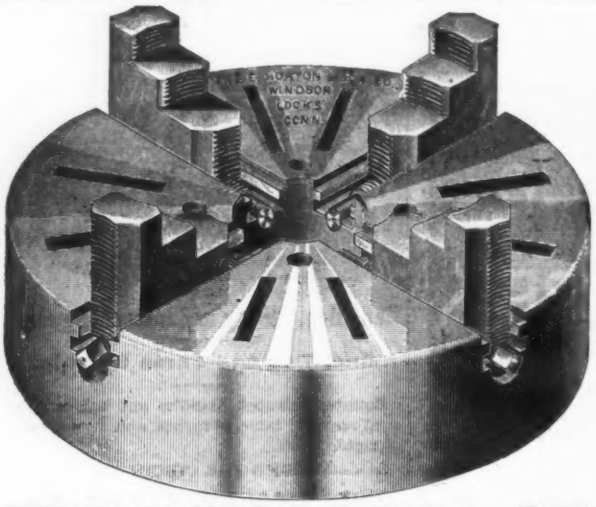

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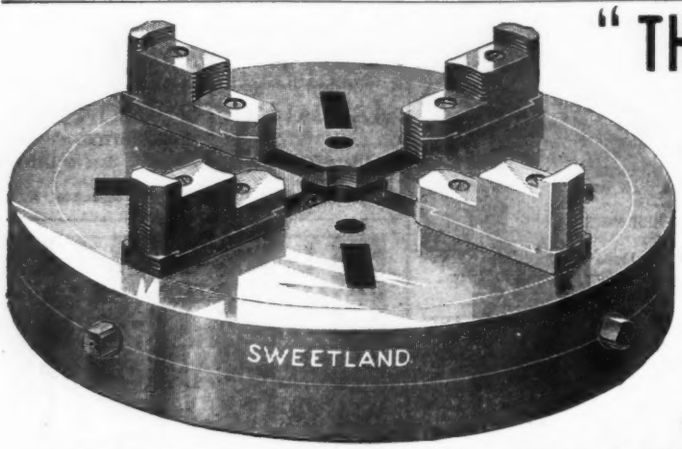

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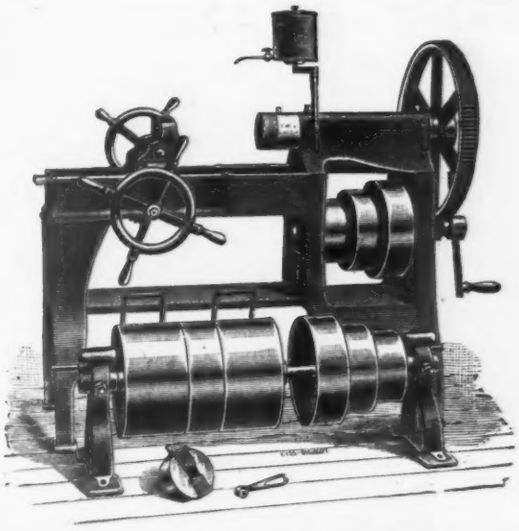

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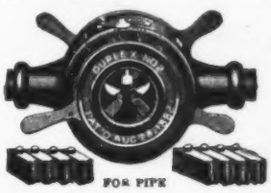

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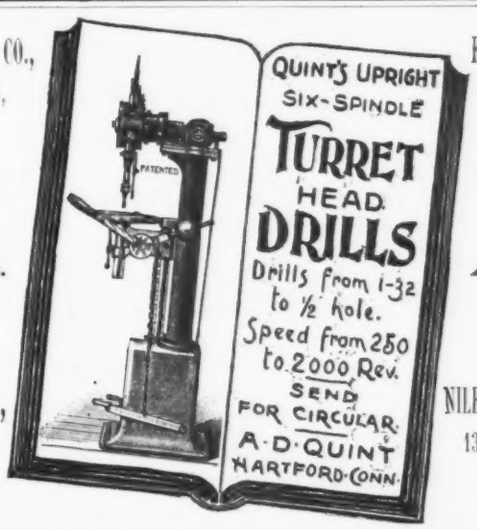

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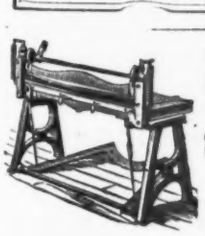

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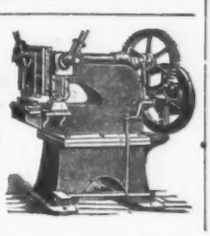

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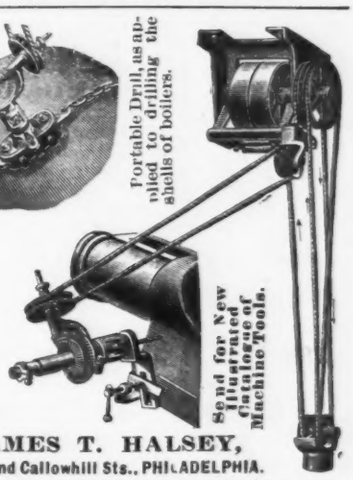

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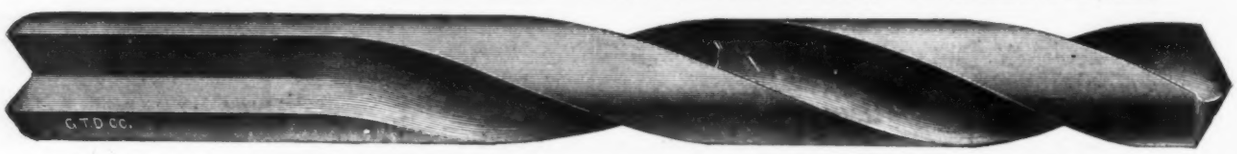

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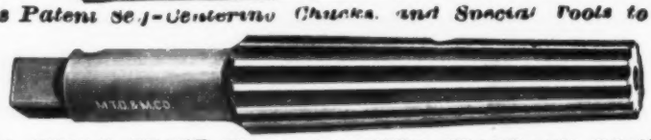

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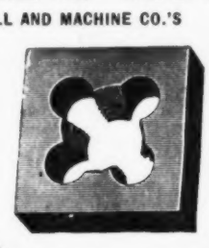

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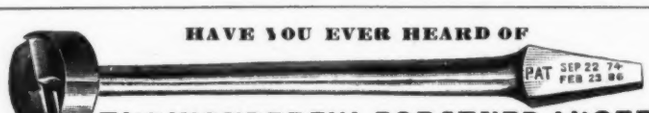

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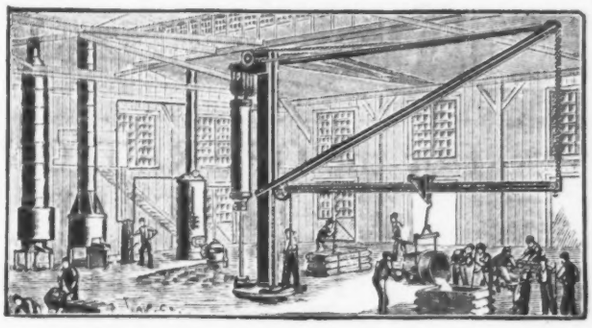

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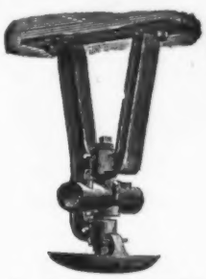

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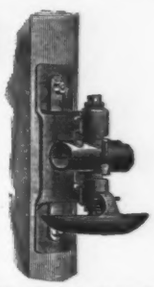

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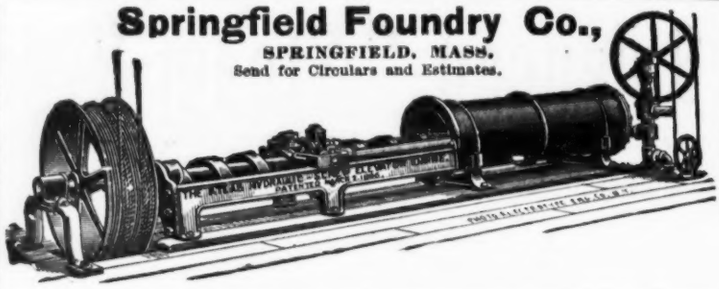

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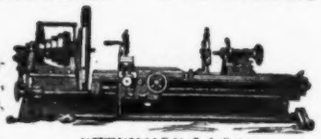

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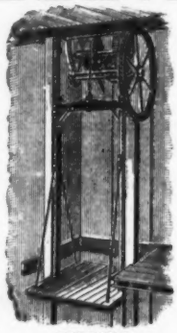

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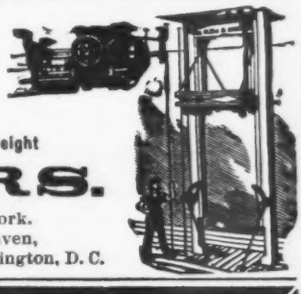

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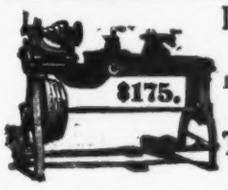

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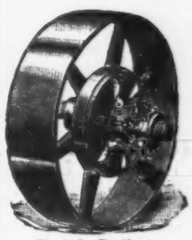

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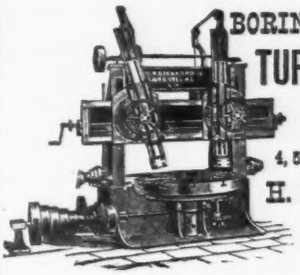

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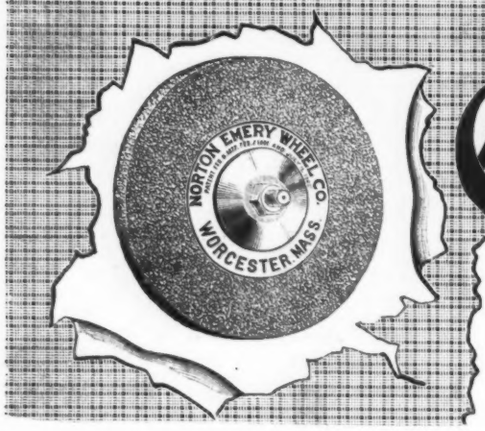

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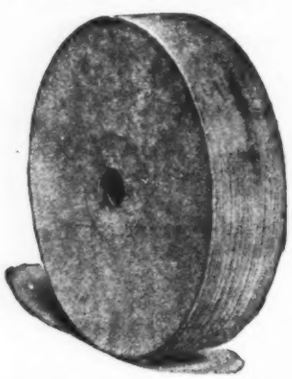

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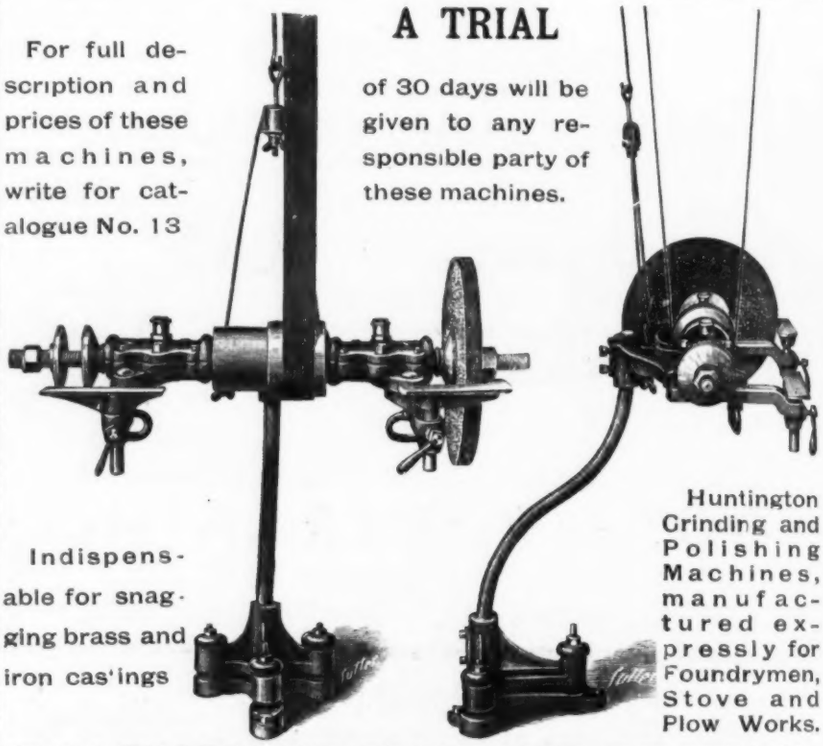

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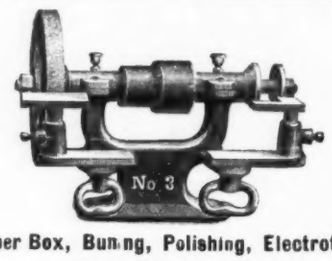

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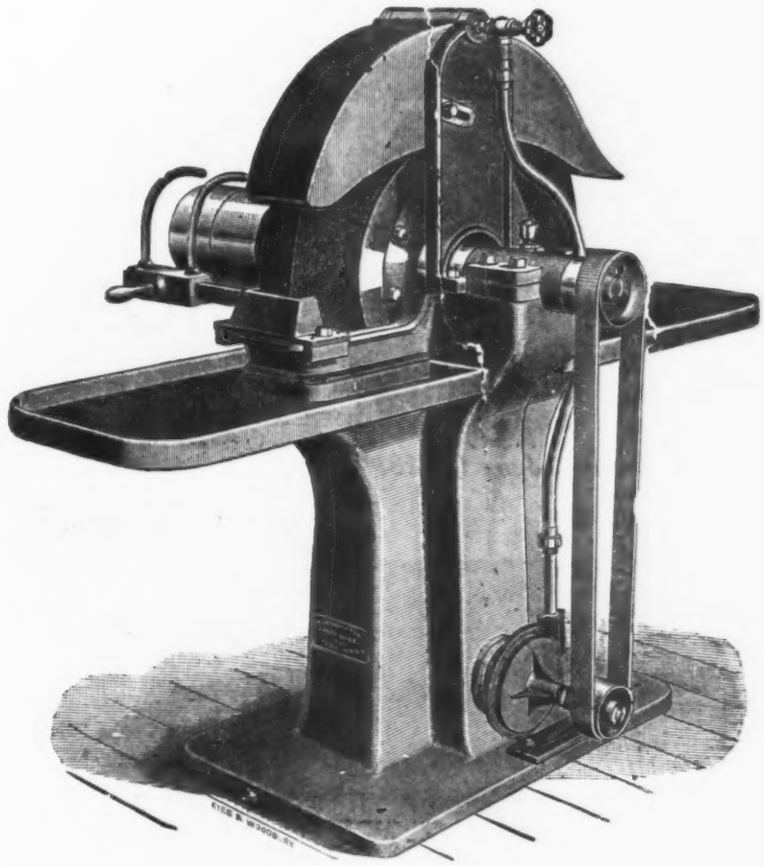

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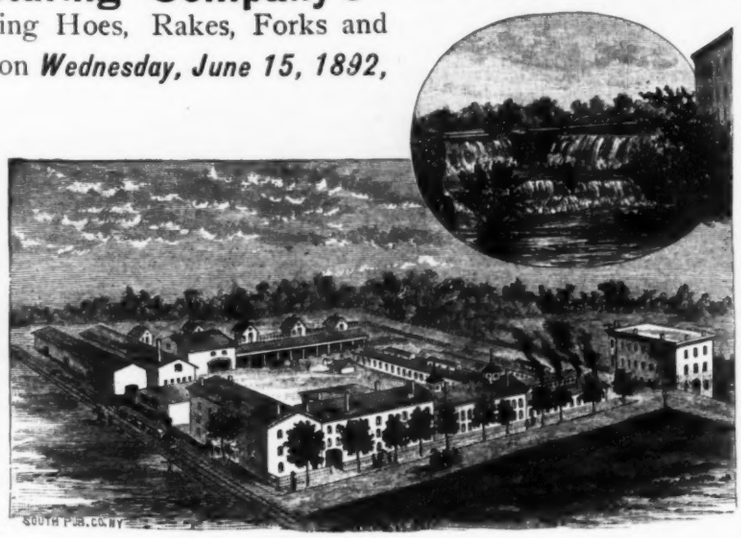

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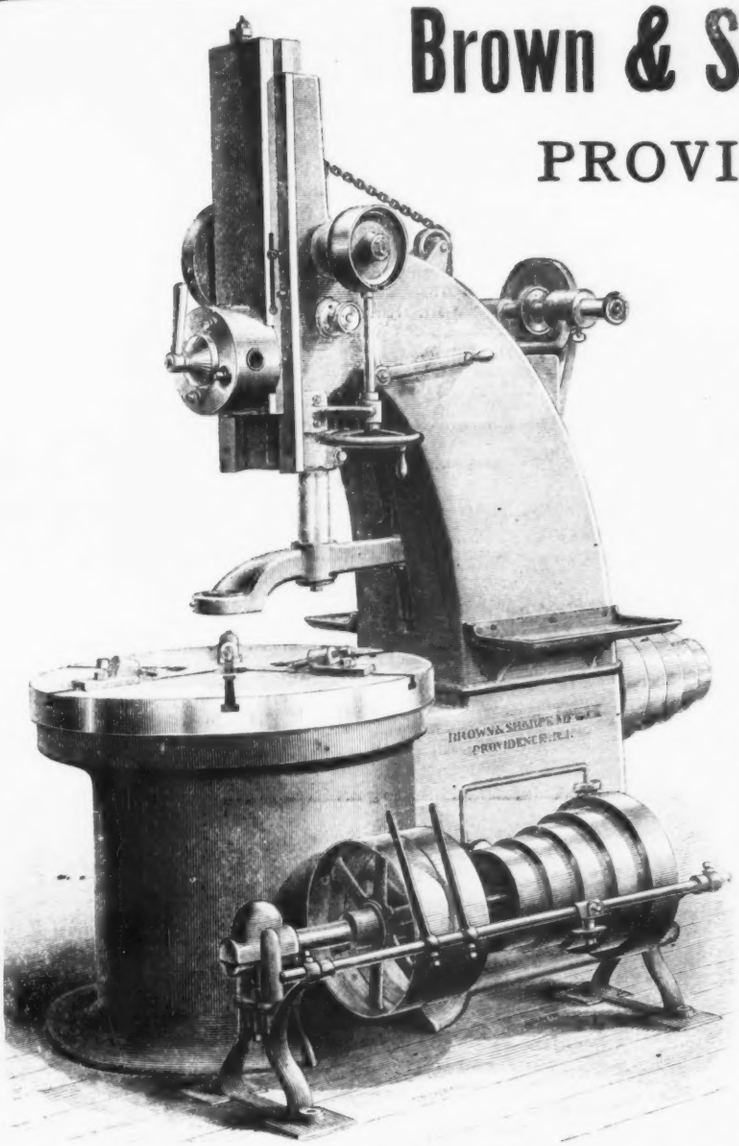

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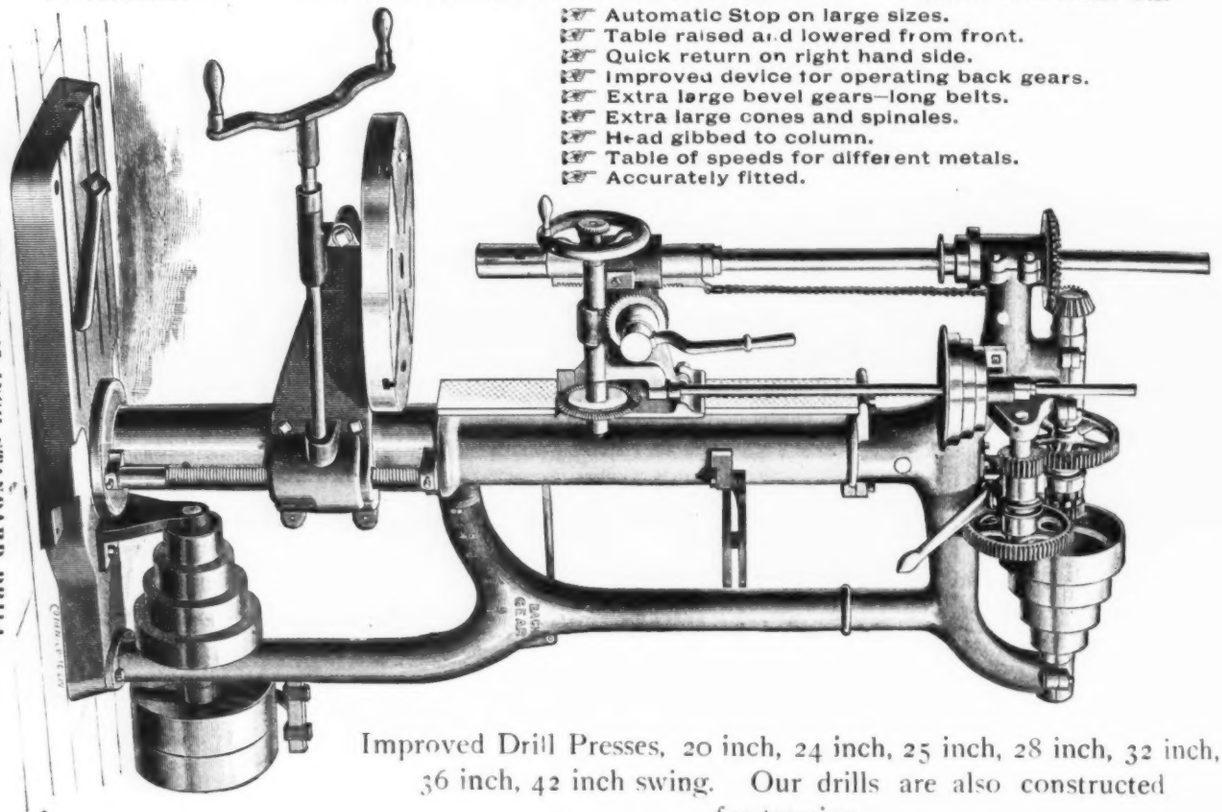

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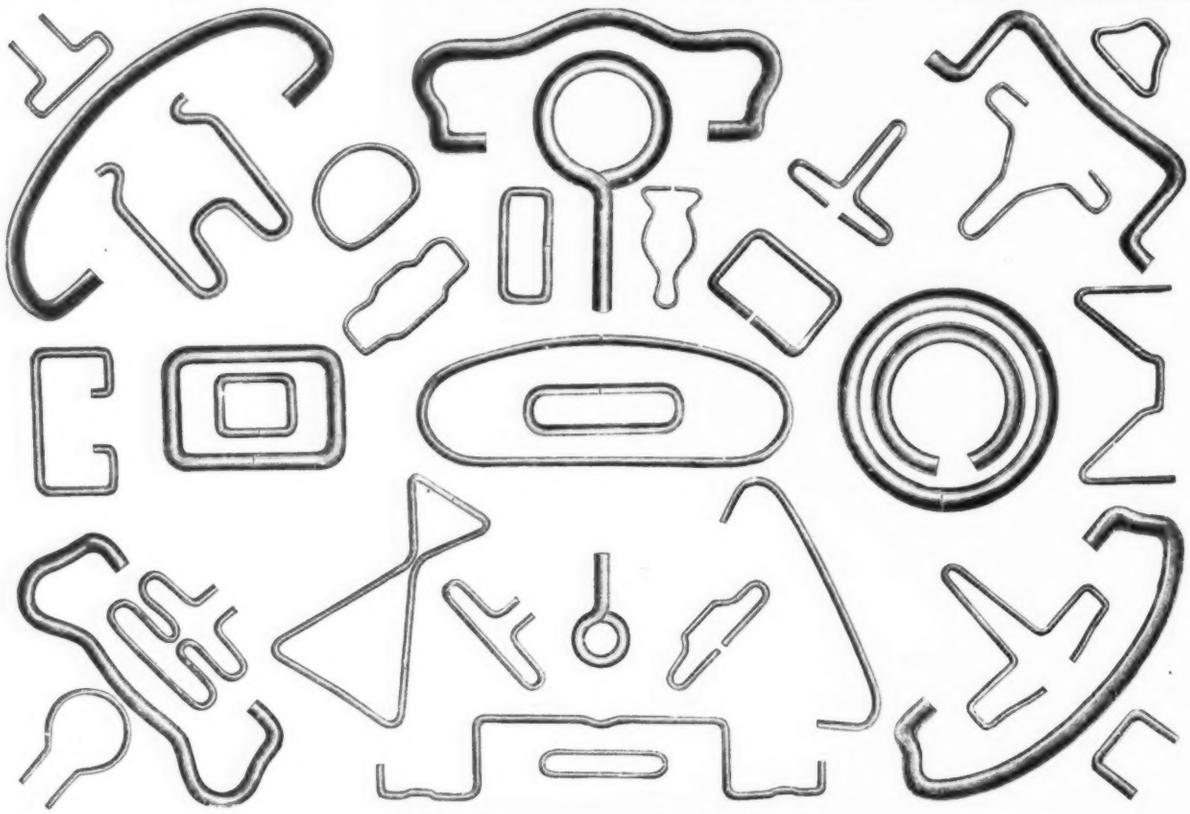

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15 in. " Extra Weight and Power. Good.
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SCREW AND MILLING MACHINES.

Jones & Lamson No. 3, hole 15-16 in. Back gears. Automatic Feed Chuck and Tools. Good.
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Slotter, 8 in. Modern Style. A 1 order.
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Keyseating Machine. Portable and Stationary.
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Large Stock Latest New Tools. Fitchburg, Hendey, Prentice Bros. and Powell's makes.

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Successor to E. P. Bullard's N. Y. Machinery Warerooms,
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BARGAINS.

Second-Hand Machinery. Good Condition.

1 Iron Planer, 36 in. x 30 in. x 16 ft. Wm. Sellers & Co.
1 Iron Planer. 30 in. x 24 in. x 25 ft. Wm Sellers & Co.
1 Iron Planer, 23 in. x 24 in. x 7¼ ft. New. Wm. Bishop.
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3 28 in. Schumacher Drill Presses, B. G. & P. F.
10 24 in Schumacher Drill Presses, B. G. & P. F.
4 20 in. and 6 14 in. Schumacher Drills. Plain
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1 20 in. x 48 in. People's Works Horizontal Engine
1 10 in. x 12 in. People's Works Vertical Engine.
1 12 in. x 16 in. Erie Horizontal Engine.
1 8 in. x 20 in. Corliss Horizontal Engine.
6, 8, 10, 15, 25 and 40 H.-P. Hoisting Engines.
1 25 H.-P. Westinghouse Engine.
1 60 H.-P. Locomotive Boiler.
1 40 H.-P. Locomotive Boiler.

L. F. SEYFERT'S SONS,
437-441 N. Third St, Philadelphia, Pa.

MACHINERY IN STOCK.

Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in. x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 23 ft., Triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

Taper Engine Lathes, 14, 16 and 18 in. x 6, 8, 10, 12 ft.; 20, 24, 28, 30 in. x 10, 12, 16 and 20 ft.

Square Arbor Fox Lathes, 14 in. x 5 ft.; 15 in. x 6 ft; 18 in. x 6.

Fox Monitor Lathes, 14 in. x 6 ft.; 15 in. x 6 ft; 16 in. x 6 ft., 18 x 6.

No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
No. 3, 4, 5, 6 Power feed " "
No. 5 and 6 " " " " clutch back gear.

20, 22, 24, 28, 30, 32, 36, 38, 40 and 45 in. Drill Presses.

Crank Shapers, 6 in., 8 in., 10 in., 12 in., 15 in., 16 in., 17 in., 20 in., 24 in., 28 in., adjustable stroke.

Friction Shapers. 15, 16, 20, 22, 30, 32 in.

Iron Planers, 16 in. x 16 in. x 3 ft.; 20 in. x 20 in. x 4 ft.; 24 in. x 24 in. x 6 ft. and 8 ft.; 30 in. x 30 in. x 6, 8, 10 and 12 ft.; 36 in. x 36 in. x 12 ft.; 44 in. x 48 in. x 22 ft. 6 in.; 52 in. x 50 in. x 17 ft.; 72 in. x 60 in. x 15 ft. and 60 in. x 49 in. x 24 ft.

C, D and E Horizontal Boring Machines, Newark Machine Tool Co.

50 in. Single Head Boring and Turning Mill.
72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-hand.
60 in. Vertical Boring Mill. Second-hand. L. W. Pond.

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115 Liberty Street, New York.
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Planer, modern, almost new, 34 x 30 x 8 ft.	$675.00
" " " " 22 x 20 x 4½ ft.	350.00
Lathe " " " 30 x 12⅜ ft.	575.00
54 in. x 16 ft. Putnam Lathe,	275.00
27 in. x 24 in. x 7 ft. Planer. Modern rebuilt	425.00
34 in. Barnes' Drill, Bk. Gd. Sf. Feed. New.	275.00
28 in. " " " "	245.00
1 1 in. to 1¼ in Bergen bolt Cutter	125.00
No. 2 Power Press, Wt. 1400 lbs. New	150.00

Engines, Boilers, Pumps, Shafting, Hangers and Machinery.

AMER. TOOL WKS., Cleveland, O.

SECOND-HAND

MACHINISTS' TOOLS.

1 Planer, planes 16 ft. long, 62 in. x 62 in.
1 Planer, planes 5 ft. 24 in. x 24 in.
1 Planer, planes 4 ft. 20 in. x 20 in. Hendy.
1 Planer, planes 3 ft. 15 in x 12 in. Gould.
1 Engine Lathe, 16 ft. bed, 84 in. swing, for Boring and Turning.
1 Engine Lathe 10 ft. bed, 25 in. swing, raised to 32 in
1 Engine Lathe, 10 ft. bed, 28 in. swing. Ames make.
1 Engine Lathe, 11 ft. bed, 23 in. swing.
1 Engine Lathe, 10 ft. bed, 24 in. swing. Old style.
2 Engine Lathes, 8 ft. bed, 18 in. swing. Good.
2 Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 475 lbs. Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¼ in.
And various other tools.

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Second-hand Machinery.

Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers' Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

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Russell Automatic Engine 11 in. x 16 in.
Porter and Allen Automatic Engine 12 in. x 20 in.
Phœnix Automatic Engine 10 in x 12 in.
Phœnix Automatic Engine 15 in. x 16 in.

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A MACHINE SHOP

OF

Second-Hand Tools

For Sale SINGLY.

MOSTLY FITCHBURG TOOLS.

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PHILADELPHIA, PA.

N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

14 in. x 6 ft. Engine Lathe, screw front, double T rest.
15 in. x 4 ft. Engine Lathe, screw back, double T rest.
15 in. x 6 ft. Engine Lathe, screw back, gauge attachment.
16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in. x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest
16½ in. x 6 ft. Engine Lathe, screw front, compound rest
17 in. x 7 ft. Engine Lathe, screw back, plain rest.
17 in. x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, miding attachment.
17½ in. x 8 ft. Engine Lathe, screw back, double T rest.
17½ in. x 8 ft. Engine Lathe, screw front, elevating block.
17½ in. x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 6 ft. Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 10 ft. Engine Lathe, screw back, double T rest cross feed
22 in. x 16 ft. Engine Lathe, screw front, double T rest.
25 in. x 14 ft. Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
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13 in. x 6 ft. Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No. 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

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31 N. Seventh St., Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

5 clay and ore pans, 11 rail, bar, sheet and clipping shears, 23 hoisting engines, 41 stationary and portable boilers, 48 stationary and portable engines, 12 steam and 9 centrifugal pumps, 3 air compressors, one standard gauge road engine and one standard gauge shifting engine.

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DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¾ x 10 in., with Double Drums. Triple Gear. Large stock of Rock Drills, Steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

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FOR SALE CHEAP.

1 15 H.-P. Double Cylinder, Double Friction Drum Horizontal Hoisting Engine, with Boiler complete. New.
1 26 in. x 18 ft. Lowell Lathe. Heavy Tool. Fair order
1 20 in. x 8 ft. Gleason Lathe. Good order.
1 18 in. x 6 ft. Fond Lathe Fair order.
1 17 in. x 6 ft. Putnam Lathe. Fair order.
1 16 in. x 6 ft. Michael Lathe. Good order.
1 13 in. x 5 ft. N. Y. S. E. Co. Lathe. Good order.
1 12 in. x 6 ft. Betts Lathe. Fair order.
1 6 in. x 30 in. Barnes Foot Lathe. Good order
1 24 in. x 24 in. x 5 ft. Powell Planer. Good order.
1 22 in. x 22 in. x 5 ft. Putnam. First-class order.
2 Suate Sensitive Drills. Good order. Cheap.
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1 B. & S. Head Finisher. Good as new.
1 B. & S. Head Slotter. Good as new.
1 No. 5 Boston Blower. Good as new.
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1 Shaper. Graham. First-class.
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2 First-Class Glue Heaters.
1 25 H.-P. straight Line Engine. Good order.
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1 3 H.-P. Yacht Engine.
1 60 H.-P. Second-hand Boiler Good order.
1 Each Champion Blower, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 Each Champion Steel Pressure Blower, Nos. 1, 2, 3, 4, 5, 6 and 7.
1 Each Champion Exhaust Fan, Nos. 1, 2, 3, 4, 5, 6 & 7.
1 Gear Cutter, Gould, in good order.
1 Dynamo 200 Light. Good order.
1 Riehle Transverse Testing Machine with Indicator. Capacity 5000. New.
1 Tapping Machine. Woodward & Rogers. New
1 Shear and Punch combined. Light machine. New.
1 Lot Wire Drawing Machines. Very cheap.
1 Lot Nail Making Machines. Very cheap.
1 Large Sorghum Roller. Weight 16,000 lbs. Very low.
1 48 in. Boring Lathe. Good as new.
1 36 in. Cupola, Blower, Rattler and Ladles. Good as new.
1 Power Chain Hoist, with Heavy Chain, complete.

Send for complete list of Machinery for prompt delivery.

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SEE LIST OF NEW MACHINERY NEXT ISSUE.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spinning Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 20 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
704in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
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16 in. Wood-Turning Lathe. Iron Bed.
13 in. Vertical Slotter.
Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

WE WANT

Screw Machines.
Chucking Lathes.
Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

THE

J. A. MacKinnon Machinery Co.,

Lafayette, N. J.

BARGAINS FOR CASH.

Write for Prices.

1 32 in. Lathe, 5 ft. bed.
1 24 in. Lathe, 10 ft. bed.
1 24 x 24 x 7 ft. Planer.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine
1 28 in. Lathe 15½ ft. bed.
1 14 in. Lathe, 6 ft. bed.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " "
2 42 in. x 11 ft. " Boilers "
1 22 in. Niles Drill Press.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " " "
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1 15 H.-P. Shapely " " "
2 84 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P. Horizontal Engines and Boilers. New and Second-hand.
1 20 in. x 10 ft. Lathe. New.
1 15 in. x 8 ft. Porter Lathe. New.
1 16 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

LOVECROVE & CO.,

Third and Quarry Sts., Philadelphia, Pa.

Second-Hand MACHINERY.

One Seller's Driving Wheel Lathe, 78 in. swing, 15½ ft. bed; single head. In fine condition.
One Engine Lathe, 84 inch swing, turns 24 feet, has back face plate for pit work.
One Screw Planer, planes 28 in. wide, 28 in. high and 11 ft. long; has two sets uprights, two cross rails and two heads on each rail.
One Pease Planer, 36 in. x 36 in. x 8 ft.
One Thayer & Houghton Planer, 28 in. x 28 in. x 7 ft. In good order.
One Brown & Sharpe No. 3 Universal Milling Machine with all attachments.
One Brainard No 3 Milling Machine, with attachments.
One Brainard Automatic Gear Cutter, 24 inch swing.
One Brainard Half-Automatic Gear Cutter, 18 inch Swing.

HILL, CLARKE & CO.,

156 Oliver Street, Boston, Mass.

FOR SALE.

Four 100 H.-P. Horizontal Tubular Boilers.
Two 80 H.-P. Horizontal Tubular Boilers.
One 75 H.-P. Horizontal Tubular Boiler.
Two 60 H.-P. Horizontal Tubular Boilers.
One 40 H.-P. Horizontal Tubular Boiler.
One 50 H.-P. Locomotive Fire Box Boiler.
Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.

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Dynamos and Motors,

both new and second-hand. I always have a full stock. Write and be convinced as to what you should buy.

THOS. YEARSLEY,

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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in.. Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

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Old Rails.

Rails for Contractors' and Builders' use in quantities to suit. Also 1000 tons second-hand Steel Rails fit for relaying, 60 lb. section. For sale by

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MACHINERY,

NEW AND SECOND-HAND, FOR SALE.

96 in. swing, 26 ft. Bed, Heads raised to swing 13 ft. A1
78 in. " 17 ft. " Screw Feed. Good.
50 in. " 30 ft. " For Rolling Mill Forgings. New
38 in. " 12 ft. " "
32 in. " 12-14-16-18 ft. Beds. New.
28 in. " 12-14-16-18 ft. " "
21 in. " 10 and 12 ft. " "
20 in. " 7½ and 8 ft. " "
18 in. " 8 ft. " Ames. Good.
16 in. " 6 and 8 ft. " Several Makers.
15 in. " 6 and 8 ft. " " "
14 in. " 8 ft. " " "
15, 18 and 25 in. stroke. Crank Shapers, Steptoe. New.
20 26 and 30 in. " Geared " " "
9 in.-16 in. " Crank " Good order.
24 in. " Geared " "
20 in.-22-24-28-30-36 in Drills. New and Second-hand.
24 in. x 4 ft. 5ft.-6 ft. Planers.
26 in. x 6 ft. "
36 in. x 10 and 12 ft. "
54 in. x 48 in. x 12 ft. " Hewes & Phillips. 2 heads
54 in x 42 in. x 24½ ft. "
62 in x 48 in. x 17 ft. "
120 in x 120 in. x 16 ft. " Betts. 2 heads
100 H.-P. Westinghouse Standard Engine.
11 x 18 Horizontal Slide Valve Engine.
2000 lb. Bement Steam Hammer.
100 lb. Bradley Helve Hammer.
Car Axle Lathe. Bement.
1¼ and 1½ Bolt Cutters.
9 and 12 in. stroke Slotting Machines.

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VERTICAL BLOWING ENGINE FOR SALE.

30 in. diam. steam cylinder, 62 in. air cylinder stroke 5 feet, in good condition. Price reasonable.

ROCK DRILLS 5 in. to 13¼ in.; **LIGHT LOCOMOTIVE** 36 in. gauge; **STEAM SHOVEL; AIR COMPRESSORS.**

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GOOD THINGS CHEAP.

1 18 in. x 12 in. x 36 in. Cameron Pump.
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1 20 in. x 10 in. x 24 in Allison Mining Pump.
3 10 in. x 5 in. x 12 in. Niagara Brass Pumps.
1 12 in. x 14 in. Wright Automatic Engine.
2 12 in x 20 in. Plain Side Valve Engines.
1 24 in x 42 in. Porter-Allen Engine.
2 Locomotive Boilers. 20 and 30 H.-P.
12 Horizontal Tubular Boilers.
2 40 H.-P. Vertical Boilers.
Lot Rock Drills, Hoisting Engines, Locomotives Dump Cars, &c., &c.
Send for Catalogue.

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FOR SALE.

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1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

The Powell Planer Co.,

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FOR SALE.

Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No. 1 Wrought Iron Scrap. Correspondence solicited.

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FOR SALE.

One Atlas Plain Slide Valve Engine, 10 x 16, and one 42 x 12, **Boiler** to go with the Engine. Both in excellent condition. Fittings complete. At a bargain.

THE CONGDON BRAKE SHOE CO.,
1014 Monadnock Building, Chicago, Ill.

!!! FOR SALE !!!

BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 8¼.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

Railroad Freight Cars.

12 Hopper Gondola Standard Gauge Cars, 50 000 lbs. capacity.
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40 Coal Dump Cars, 30,000 lbs. capacity. For sale cheap in lots to suit individual concerns. Address

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One 30 x 30 x 10 ft. Pease Planer.
One No. 3 Garvin Universal Milling Machine, complete.

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BESSEMER PIG IRON

3000 tons No. 1 bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

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STEEL RAILS.

We offer 100 tons second-hand Steel Rails, 67 pound section, fit for relaying, with splices (no bolts).

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A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

"ENGINE," Box 324.
office of *The Iron Age*, 96-102 Reade St., N. Y.

FOR SALE

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FEED-WATER HEATERS,

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

BENJ. F. KELLEY & SON.
Liberty St., New York.

FOR SALE.

SECOND-HAND

1 Horizontal Boring Machine, swings 69 inches over bed, 55 inches over table, 6 feet between centers; power longitudinal and cross feed.

Iron Planer, planes 42 in. x 42 in. x 20 feet, one head on cross beam.

The above tools of our own manufacture and never used except in our own shop; in good condition, but not large enough for our present need.

FITCHBURG MACHINE WORKS,
Fitchburg, Mass.

FOR SALE.

Large lot of Loco. Boilers,
50 to 100 H.-P., in first-class order.

Can furnish stacks, grates and all fittings to suit purchasers.

CHESTER BERTOLETTE & CO.,
Norristown, Pa.

FOR SALE.

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BOILER TUBING

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

Dan'l W. Richards & Co.,
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For Sale or Exchange.

Charcoal Blast Furnace.

In good condition; excellent location. Caseville, Huron Co., Michigan. Address

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FOR SALE.

Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.

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CRANK and GEARED SHAPERS.

Write us for Bargains.

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BOILER, Locomotive style, 60 in. shell, fire box 78 in. long, 55 in. wide, 81 flues, 3½ in. diameter, 13 ft. long; total length about 23 ft., in good order, removed to put in larger.

PLANER. Iron Planer to plane 30 ft. x 46 in. width, two tool posts, modern machinery, removed to put in larger.

LOCOMOTIVE, new, 10 x 16 in. cylinders, standard gauge, Forney design, suitable for light passenger, suburban or logging service. Also narrow gauge locomotives, various sizes on hand or nearly completed.

H. K. PORTER & CO.,
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SECOND-HAND PULSOMETER.

Centrifugal and other Pumps, equal new, Cheap.
1 No. 5 Pulsometer, 3 in. Suc., 3 in. Discharge, all fittings..... $100.
2 No. 9 Pulsometers, 7 in. Suc., 6 in. Discharge, all fittings..... 350
1 No. 3 Woodward, 7 x 4 x 9, with Strainer..... 100.
1 No. 2 Guild & Garrison 5 x 3 x 7, with Strainer. 75.
1 No. 1 Wolf Hand or Power Pump, with Strainer 25.
1 No. 000 Blake. Like new..... 25.
1 "Excelsior" Double Acting 4 x 5 Hand Pump. 25.
1 No. 5 Heall, Tisco & Co. Centrifugal, Extra heavy, with Tight and Loose Pulley, 6 in. Suc., 5 in Discharge..... 100.
And 34 in. Ventilating Wheels..... 35.
Engines, Boilers and Machinery generally.

MASLIN PUMP WORKS,
165 & 167 First St., Jersey City, N. J.

FOR SALE.

Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.

The Lodge and Davis Machine Tool Co.,
Cincinnati, Ohio.

CORLISS

Automatic Engines.

—ALSO—

ELECTRIC LIGHT, HIGH SPEED AND SLIDE VALVE ENGINES IN FIRST-CLASS CONDITION FOR IMMEDIATE DELIVERY AT VERY LOW PRICES.

Corliss Engines, one each 30 x 60, 30 x 72, 32 x 48, 26 x 48, 23 x 36, 20 x 48, 18 x 48, 16 x 42, 14 x 48, 12 x 36. Buckeye Engines, one each 11 x 20 11 x 21, 14 x 24, 15 x 18. One pair of Woodruff & Beach Engines, automatic cut-off, 20 x 48. Slide Valve Engines, 10 x 16, 11 x 24, 8 x 8, 11 x 16, 12 x 24, 7 x 14 and 14 x 16. Steel Boilers, assorted sizes, 50, 55, 60 80 and 100 H.-P., all insured for 80 pounds. 8 and 9 feet Fan Blowers, Ingersoll Rock Drills, Steam Pumps, Worthington, Blake, Cameron and Niagara. Iron Lathes, 14 in. x 5½ ft.; 7500 gallon tank and smaller sizes; Buckley and Jet Condensers; Hoisting Engines. All in good working condition. Send for catalogue.

G. M. CLAPP, Agent,
74 Cortlandt Street, New York.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

SECOND-HAND MACHINERY.

Locomotive Boiler, 6 ft. x 21 ft. (2).
Locomotive Boiler, 4 ft. x 10½ ft.
Zell Water Tube Sectional Boiler, 75 H.-P.
Horizontal Tubular Boiler, 5 ft. x 15 ft.
Horizontal Tubular Boiler, 5 ft. x 16 ft.
Horizontal Tubular Boiler 4½ ft. x 18 ft.

"Giant" Railroad Excavator and Wrecker.

Built by Vulcan Iron Works Co., of Toledo, O., Mounted on Standard Gauge Car, Capacity 2000 yards. Double Hoisting Engines 10 in. x 12 in., Single swing Engines 10 in. x 12 in., Boiler 4½ ft. x 9 ft., Water Tank 1000 gallons. Will sell or rent to responsible parties.

30 x 60 Corliss Engine,	26 x 60 Corliss Engine,
26 x 42 Corliss Engine,	24 x 48 Corliss Engine,
18 x 48 Corliss Engine,	12 x 36 Corliss Engine,
22 x 42 Wright Engine,	18 x 42 Brown Engine,
18 x 28 Watertown and	12 x 12 Ball Engine.

Send for Lists.

General Machinery.

MARVIN BRIGGS, 61-63 Rutgers Slip, N. Y.

FOR SALE.

Squaring Shear, 48, 66 and 126 inch.
1 Planer, 8 ft. x 8 ft. x 20 ft. Good order.
1 Bit Lathe, 10 ft. Face Plate. " "
1 Fitchburg Lathe, 26 in. x 20 ft. Good order.
1 New Haven Lathe, 26 in. x 16 ft. " "
1 Eddy Chucking Lathe, 48 in., bores and turns.
1 8 ft. Pulley Lathe, 2 tools.
1 60 in. " " New Haven.
1 Pratt & Whitney Screw Machine, nearly new.
1 Windsor Screw Machine, 1¼ in., nearly new.
1 Adt Wire Straightener, 5 ft. cut off, large size
3 Bolt Cutters, 1 in. double, 1½ in. double, 3 in. single.
2 Bolt Headers, ¾ in. Chapin, 1 in. Smith.
2 Nut Tappers, 6 spindle for ⅞ in.; 7 spindle for ¼ to 1¼ in.
1 Bolt Pointer. 1 Heating Furnace.
2 Milling Machines; 2 Spindle Garvin and Lincoln Pattern.
2 Heaters, medium and large size.
1 No. 6 Knowles Steam Pump, very good.
1 100 H.-P. Babcock Safety Boiler, very good.
1 100 H.-P. Automatic Engine and 1 65 H.-P. Beck Automatic.

W. H. ROBERTSON, 28 South Canal St., Chicago, Ill.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 500 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

For prices apply at once to

BRONSON BROS.,
Painted Post, N. Y.

AIR COMPRESSORS WANTED

Second-Hand in good condition, one large or two small "MINER," 351, office of *The Iron Age*, 96-102 Reade Street, New York.

FOR SALE.

Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.

THE GOULDS MFG. CO.,
Seneca Falls, N. Y.

Changed Weekly.

— FOR SALE. —

GAS ENGINES, 5 and 10 H.-P., new, guaranteed.
BOLT HEADERS, new improved Lewis, will make all kinds, without changing tools.
SLEDGES, 600 lbs., new, slightly seamy.
BOILER, new 50 H. P., near Philadelphia
LATHE, 60 in., New Haven make, owned by Beckett Foundry & Machine Co., Arlington, N. J.
TRUCK WHEELS, 500 new, 8 9 in., in stock.
DYNAMOS, 60 new, 40 to 500 light, to close out.
NUT PRESS, 1 in., 1½ in., nuts.
GAS ENGINE 10 H.-P., Otto.
HAMMER, Dudgeon, 10 x 30, complete, 2 rams.
PLANER, new, never unboxed, arrived too late for shipment.

H. H. MANSFIELD,
126 Liberty St., New York.

SPECIAL INDUCEMENTS
— IN —
2D-HAND MACHINERY.

ENGINE LATHES.
14 in. x 6 ft., Bogert, H. S., Elevating Rest, Chuck fitted. A1 condition.
15 in. x 5 ft. Blundell, Elevating Rest, 2 Chucks, fitted. Good order.
14 in. x 6 ft. Windsor, H. S., Elevating Rest. 2 Chucks Good as new.
10 in. x 5 ft. Reed, H. S., Elevating Rest, Chuck fitted. Good as new.

PLANERS.
22 in x 22 in. x 5 ft Pease, with 12 in. Chuck. Good as new
22 in. x 22 in. x 5 ft. Whitcomb, complete. Good as new.
19 in x 17 in. x 5 ft. Whitcomb, complete. A1 condition.

DRILLS.
2 20 in. Davis, Wheel Feed, Quick Return. Good order
1 W. & R. 4 Spindle Sensitive Drill. A1 condition.
1 No. 2, 3 Spindle Garvin, Elevating Table. A1 condition.
1 No. 4, 6 Spindle Garvin, Elevating Table. A1 condition.

MISCELLANEOUS.
2 No. 1 Brown & Sharpe plain Millers, complete. A1 condition.
1 No. 1 Garvin Miller, Rack Feed, not B. G. A1 condition.
1 No. 3 Cincinnati Universal Miller, Rack Cutting attachment, lot of tools, very complete. Good as new.
1 Single Spindle Garvin Profiler. Good as new.
1 12 in. Juengst Crank Shaper, complete. A1 condition.
1 No. 2 Brown & Sharpe Screw Machine and Tools. A1 condition.
1 15 in. x 5 ft. Am. Tool & Machine Co.'s Fox Lathe, square Arbor, compound Slide Rest, complete. Good as new.

Write for list of over 350 new and second-hand Tools in stock for immediate delivery.

THE GARVIN MACHINE CO.,
Laight and Canal Sts., N. Y.

Wrought Iron Tanks For Sale.

2 12 ft. x 6 ft.
2 17 ft. 6 in. x 3 ft.
1 12 ft. x 3 ft.
1 25 ft. 3 in. x 3 ft.
1 24 ft. x 3 ft.
1 30 ft. 6 in. x 2 ft. 6 in.
1 26 ft. x 2 ft. 6 in.
1 6 ft. 6 in. x 11 ft. x 3 ft. 10 in.
1 6 ft. 6 in. x 6 ft. 6 in. x 15 ft.
1 7 ft. 6 in. x 4 ft. x 4 ft. 6 in.
1 7 ft. x 7 ft. x 10 in.

APPLY TO

F. E. Perkins & Bro.,
59-73 West St., - Brooklyn, N. Y.

RELAYING RAILS
FOR SALE CHEAP.

Rails for relaying, in good condition.

250 tons 52 lb. Steel Johnstown Girders,
300 " 40 lb. " T Rails with Splices.
350 " 35 lb. " T " " "
100 " 20 lb. " T " " "
220 " 35 lb. Iron T " " "
100 " 25 lb. " T " " "

I am also in the market to buy or sell any weight second-hand rails and scrap.

L. K. HIRSCH,
549 Rookery, Chicago, Ill.

PROPOSALS

For supplying the city of Orange with 4,000 feet C. I. Water Pipe from time to time during the current season will be received at the office of City Clerk up to 5 P.M. of June 6, 1892, 4 in. and 6 in. pipe, to weigh respectively 20 and 30 lbs. per foot. THOMAS DOWD, Supt.

Address communications to
HORACE STETSON, City Clerk.

FOR SALE. WELL EQUIPPED
Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

P. O. BOX 1119, New York.

A BARGAIN.

A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c.; ready to start up at once; will be sold at about half price. Address

T. C. KERRICK,
Bloomington, Ill.

SPECIAL TO MANUFACTURERS!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations. 170 x 900 feet; N. Y. C. R. R. switch full length of property. I will advance one-half money necessary for erection of permanent buildings.

E. G. FELTHOUSEN, Room 42,
534 Main St., Buffalo, N. Y.

FOR SALE.

A lot of 30 and 60 lb. T-Rails, fit to relay; Old Telegraph Wire, one cent per lb., f.o.b. cars; Valentine Self-Dumping Cars, 5 and 2 cubic yards capacity, dump tubs; a lot of Broad and Narrow Gauge Locomotives; Wire Rope; also a lot of 6 inch Cast Iron Flange Pipe, &c., cheap. Address

THOMPSON C. GILL & CO.,
212 S. Third St., Philadelphia, Pa.

PLEASE NOTICE.

For sale —Wrought Plates suitable for flooring, Boiler Shells, 8 feet diameter, 20 feet long, would make good tanks. 60 ton Track Scale, Old Shears and Bundling Wire.

MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

To Manufacturers Requiring Railway and Water Communication
FOR SALE.

MANUFACTURING PLANT

Within 45 minutes from the City Hall.

Consisting of

Foundry, Machine, Blacksmith and Carpenter Shops.

All built of brick with slate roof, covering 45,000 square feet of ground, with Corliss Engine of 250 horse-power, &c., &c., together with numerous Sheds, Stables, &c

About 12 acres of land, stone filled dock on River, etc.

For particulars, apply to

S. DE WALLTEARSS,
171 Broadway, - - NEW YORK.

AUGER AND BIT FACTORY
FOR SALE.

We offer for sale at a very low price our manufacturing business, located in the beautiful and growing village of Centerbrook, in the town of Essex, State of Connecticut. It has one of the best water-powers in the State. Good buildings, well fitted-up with special tools and machines for making Jennings' Bits, Expansive Bits and all other wood boring tools. With a capacity for employing from 50 to 75 men.

CONN. VALLEY MFG. CO.,
Centerbrook, Conn.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

Wheel, Axle and Iron Manufacturers and Capitalists.

Your attention is called to the following.

Two very valuable patents touching wheel and axle manufacturers and the iron trade are now offered for sale. One is an improvement in axle arms consisting of four concave depressions so arranged in the arm that they lessen friction and automatically lubricate it (the arm). The other is one of the most valuable patents ever issued. It gives to the owner a monopoly over a certain branch of business that has not been equaled in this century. This patent consists of a hub made from malleable iron, steel or other suitable metal, so made that in connection with an axle arm of suitable dimensions, &c., it does away with the projecting hubs of wheels that are now so common and annoying. It is no idle fancy to think and say that when this hub is introduced all others will disappear. Wheels made with this hub will be the nearest approach to perfection ever made in that line. To secure control of this patent is to secure a fortune. These patents will be disposed of singly or together, they will be sold outright or stock taken in a company organized for their manufacture. For further particulars address

PETER McMENAMIM,
273 Fifth St., Jersey City, N. J.

FACTORY FOR SALE OR TO RENT
at NEWARK, N. J.

A two-story building 33 x 100, including shafting, piping, engine and boiler (60 H. P.), suitable for almost any kind of manufacturing business. Good light on all sides of building and plenty of yard room. Located within ten minutes' walk of Pennsylvania R. R. station; terms moderate. Address

W. W. BRADLEY,
85 Malvern St., Newark, N. J.

FAIRBANK'S TRACK SCALE
FOR SALE.

60 tons capacity. Nearly new. For immediate removal. At a bargain, cash or trade.

MATTHEW GILL, JR.,
308 Walnut St., Philadelphia

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c. with lowest freight rates to and from all points. ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY.

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.

CHAMBER OF COMMERCE BLDG, CHICAGO
THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,

Suburban Traffic Agt., 317 BROADWAY, N. Y.

OGDEN, UTAH,

Offers the best location on Earth and $100,000 for an iron works; $50,000 for a reduction works for silver-lead ores; $50,000 for stock yards; $25,000 for woolen mills; $10,000 for a paper mill; $5000 for a pottery; $5000 for a tannery $5000 for glass works.

—OGDEN—

Has Natural Gas, Mountains of Coal and plenty of Iron and NERVE. We mean business. No dead-heads or adventurers need apply.

SECY. CHAMBER OF COMMERCE,
Ogden, Utah.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

SITE WANTED. Any town or city desiring a manufacturing plant which will yield much trade to the dealers, both direct and through its employees, will do well to address "CLINTON,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

A modern first-class, second-hand Horizontal Engine, 40 to 60 H.-P., spot cash.

M. B. SCHENCK & CO.,
Meriden, Conn.

Machine Shop, Iron Foundry, Pattern and Forging Shops.

Concern having well equipped and thoroughly organized departments as above, want specialties to build.

Facilities for fair, good and high grades of quality and medium light to heavy weights Would buy patents.

"W. SPECIALTIES,"

Office of *The Iron Age*, 96-102 Reade Street, N. Y.

FACTORY FOR - SALE - CHEAP.

In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft. x 100 ft., with 30 H.-P. Engine and Boiler and 90 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

W. C. MEEKER,

587 Henderson St., Jersey City.

MALLEABLE IRON PLANT FOR SALE or TO LET.

Best Location in Albany, N. Y.

Suitable for any Iron Manufacturing Business.

1 Air Furnace. - 2 Cupolas. - 3 Kilns.

The property of the Capital City Malleable Iron Co. (now occupied by the Troy Malleable Iron Co., whose lease expires October 1, 1892). Substantial five story brick building with high trussed roof, building attached covering entire block bounded by Fourth avenue, Broadway, Church and Vine streets, and one-half block adjacent property, with stable, coal sheds, &c.

Two hundred feet from dock, with West Shore and D. and H. Railroad track alongside of building. Fitted out with first-class steel boiler, engine, shafting and Otis steam elevator. Buildings in excellent repair and machinery in the best running order. Apply to DAVID F. SKINNER, President, 199 Broadway, or E. C. SKINNER, Secretary, on the premises.

FOR SALE.

The Entire Plant of the ALEX. K. RARIG CO.,

Engineers, contractors, founders, machinists and boilermakers.

BUENA VISTA, VA., JUNE 16, 1892.

AT PUBLIC AUCTION.

IF INTERESTED WRITE FOR PARTICULARS.

J. E. MULLEN, Trustee.

FOR SALE.

The patents and machinery for making Corrugated Barbed Ribbon Fencing. Machinery in first-class order, will put on 120 barbs per minute. Everything in good shape.

WILLIAM BURTIS, New Egypt, N. J.

WANTED.

Party to take $5000 to $10,000 worth of stock in a new enterprise and to undertake the general control and management of New York sales office at a satisfactory salary. Must know how to advertise and introduce new machinery. Address "H. S. B.," Box 62,
office of *The Iron Age*, 96-102 Reade St, N. Y.

FOR SALE.

Sealed proposals will be received until noon of June 15, 1892, by W. F. Kyle, Manager for the Trustees of the Fieldhouse & Dutcher Mfg Co., 30 & 32 West Monroe St., Chicago, Ill., for the sale of the entire property of said Company, including accounts; or for the sale of the merchandise, machinery and fixtures, in whole or in part.

The amount of sales in 1890 and 1891, combined, exceeded $800,000. The business shows a considerable capital over liabilities.

The Trustees reserve the right to reject any or all proposals. The books, accounts, merchandise and other property will be exhibited to any responsible persons who may wish to submit proposals for purchase. Blank forms will be furnished for proposals. Proposals may be sent to Mr. W F. Kyle at the above address, and will be forwarded to the Trustees at New York for acceptance or rejection by June 20.

The Trustees of

FIELDHOUSE & DUTCHER MFG. CO.

FOR SALE.

RARE OPPORTUNITY FOR THE RIGHT MAN.

Owing to the death of Edward Heath, Treasurer of the Malden Hardware Co., Malden, Mass., a city of 25,000 inhabitants, situated 4 miles from Boston, the stock, fixtures, tools and teams of the company are offered for sale Stock will invoice about $10,000. Must be sold on or before June 1, 1892, to close estate. Apply to

CHARLES HEATH, President,
on the premises.

FOR SALE.

A thoroughly well assorted stock of Shelf Hardware, House Furnishings, Stoves, &c., located in a growing and thriving Illinois town of 25,000 inhabitants; stock $8,000 to $10,000. The town is noted for its manufactures and is surrounded by the finest agricultural lands in the State. The business well established and thriving. Address "LIGHT,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

BUSINESS FOR SALE.—A thoroughly established manufacturing business in the metal line. Goods well known and selling to the best wholesale trade. This business is now paying, but present owners have other business to which must be given all their time and capital. Thoroughly competent practical man will stay with it it desired. About $15,000 required. Good chance for some town desiring manufacturing plant, as it can be easily removed. "LAFAYETTE," office of *The Iron Age*, 96-102 Reade St., New York.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish (no trade for real estate). For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

HARDWARE STOCK FOR SALE CHEAP.

The stock of goods in the old hardware stand at Waverly, N. Y., is offered for sale. The stock is reduced to low amount and is clean. The stand has had a large trade for upwards of 40 years and is well and favorably known for miles around. Building is very convenient and has the modern improvements, including large power elevator. This opening presents an opportunity to start up with a fresh stock, or to move an old stock from a crowded locality to this desirable point. Three railroad trunk lines pass through Waverly. Address

H. G. MERRIAM,
Waverly, Tioga Co., New York.

TIN WORKS.

A firm of engineers in South Wales, closely associated with the trade, are prepared to supply all plans, specifications and estimates for the erection and conduct of tin works embracing all the latest improvements for economizing the cost of production, and also to contract for the supply and erection of the same. Reply in first instance to

"TIN WORKS,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

One second-hand Crane 10 or 12 tons capacity, made of structural iron or steel, of the following dimensions: Mast 26 feet, jib 27 feet, with racking carriage on top. Name lowest price for cash. Address

"CRANE,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

There are in the U. S.

13,000 Live Hardware Dealers.

To each of these I shall mail

An Elegant Prospectus of the New Book,

"Ideas for Hardware Merchants."

(Price, $1.00. Postpaid.)

The cost of mailing is as follows:

Selecting	13,000 Names	$52.00
Addressing	13,000 Envelopes	39.00
Cost of	13,000 Envelopes	26.00
Stamping	13,000 Envelopes	13.00
Assorting	13,000 Envelopes	26.00
Postage on	13,000 Envelopes	130.00
Printing	13,000 Circulars	65.00
Total, ...		$351.00

In this connection I will make the proposition to any Hardware Manufacturer who desires to circularize the entire trade to enclose his circular with mine at the low rate of only $5.00 per thousand names for as many thousand names as he desires to use.

This offer is for immediate acceptance. Address

D. T. MALLETT,

New Haven, Conn.

THE CHICAGO, MILWAUkee & St. Paul Railway Company desires to have the raw material on its 6150 miles of road in Illinois, Wisconsin, Northern Michigan, Iowa, Missouri, Minnesota, South Dakota and North Dakota utilized.

In addition to the vast agricultural resourses, its territory comprises Forests of Hard and Soft Wood, Mines of Iron and other Metals, Coal and other Minerals, Quarries, Clays of all kinds, Tanbark, Flax and other products. Water-powers (both river and artesian) are also still available.

A number of new factories have been induced to locate—largely through the instrumentality of this Company—at enterprising towns on its lines.

As the interest of the Company is to secure the location of industries at places where the surroundings will insure their permanent success, the information furnished a particular industry is pertinent and reliable.

The people on the whole System are one live and thriving community of business men in whose midst it is safe and profitable to settle. Local capital is being largely invested in local factories, and taken as a whole, the country through which the road runs is commanding attention as the coming industrial territory of the United States. Solid Concerns, Manufacturers, large or small, who thoroughly understand their business are sought for at suitable points on the road.

Individuals or companies wishing to embark capital in Western industry can find a profitable field.

For particulars relative to industrial advantages on the line, address

LUIS JACKSON,
Industrial Commissioner,
C., M. & St. P. R'y, 160 Adams St., Chicago, Ill.

HARDWARE AGENCY WANTED.

Have an established Manufacturers' Agency of 12 years' standing and want a large manufacturer of general hardware to represent in this market. Am a thorough hardwareman.

Address
"HARDWARE,"
1117 Chamber of Commerce, Chicago.

RAILS. RAILS. RAILS.

Attention, Contractors and Builders.

We are prepared to furnish on short notice Steel Rails cut to any length.

BLOCK-POLLAK IRON CO.,
69 Commerce Building, 14-16 Pacific Ave.,
Chicago, Ill.

TO MANUFACTURERS.

The owner of a valuable Rolling Mill property could spare about 200 square feet of land with water power, and would lease or make other arrangements with suitable parties for its occupancy. The location, within 40 miles of Philadelphia, is in all respects a desirable one; population about 4000, from which an unusually intelligent class of labor could be secured.

For further particulars address

"K. C.,"
Box 1080,
Philadelphia, Pa.

WANTED.

To furnish reasonable estimates on specialties in light metal work to order.

CLARK & COWLES, Plainville, Conn.,
Manufacturers of Clock Trimmings, Rivets, Springs, &c.

WANTED.

By a firm having connection with ironmongers, builders, architects, hotels and workshops, &c., an agency for England, Scotland and Ireland for a good and salable article or articles; one which has been sold in the English market preferred. Apply

"Acme" Door Check and General Machine Company,
48 Lees Road, Oldham, near Manchester, England.

Business Chance.

Good complete Retail Hardware Stock for sale in city of New Haven, Conn., one of the best localities in the State for the business. Value of stock $15,000 to $20,000. Inquire "CONNECTICUT," Box 21, office of *The Iron Age*, 96-102 Reade St., New York.

To Manufacturers

—DESIRING—

EXPORT TRADE.

Established Manufacturers' Agent, well acquainted with the Export Trade, desires agency of staple or special lines of Hardware, Agricultural Goods, &c.

Address "EXPORT TRADE,"
Box 21, office of *The Iron Age*, 96-102 Reade St., New York.

CAPITAL WANTED.

To manufacture and introduce a **WIRE NAIL MACHINE** of superior merit as regards construction and small cost of operation and repair. Fully covered by U. S. Patents. Three sizes of machine in successful use, capacity of production exceeding any machine now in operation. Will sell patent and machines outright or go into a stock company to manufacture machines for sale or use. Address

"WIRE NAILS,"
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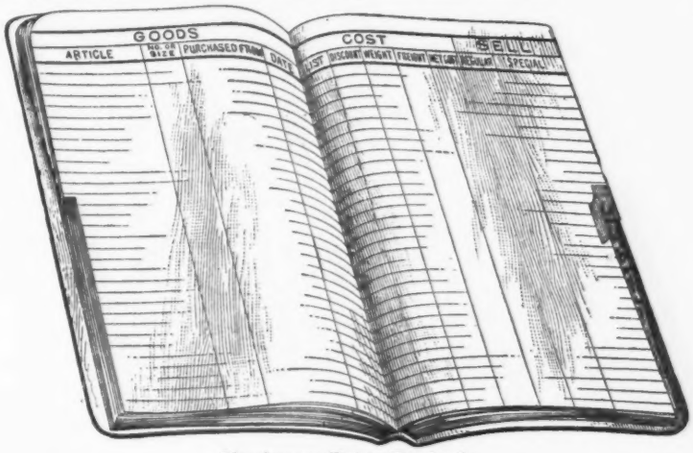

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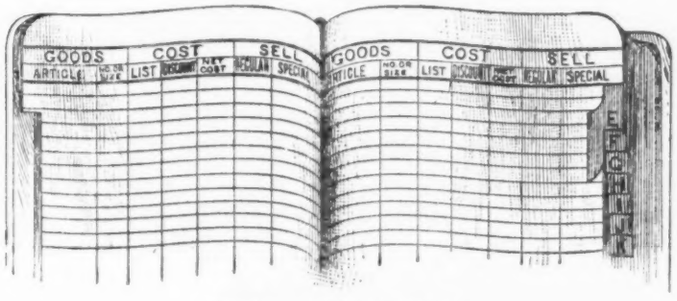

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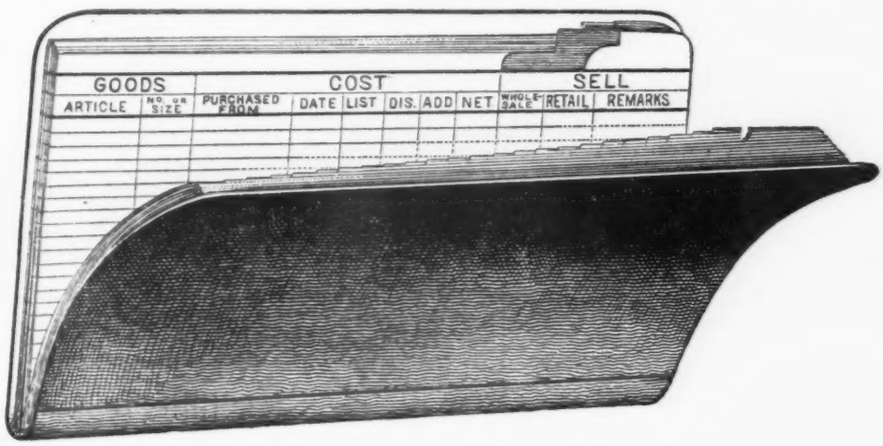

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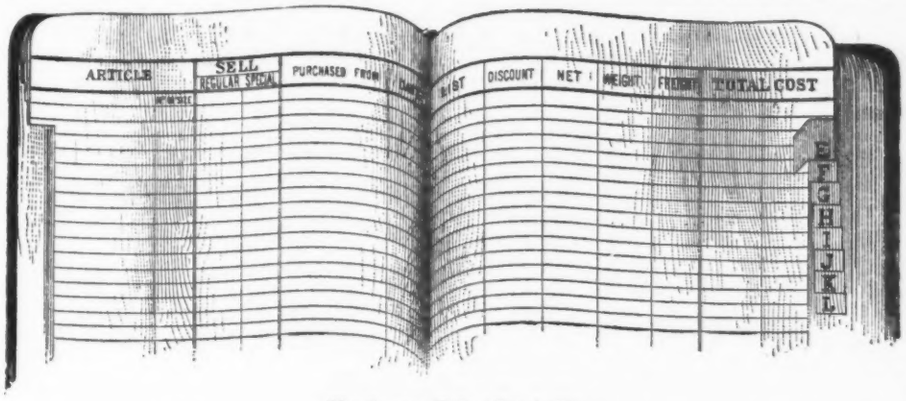

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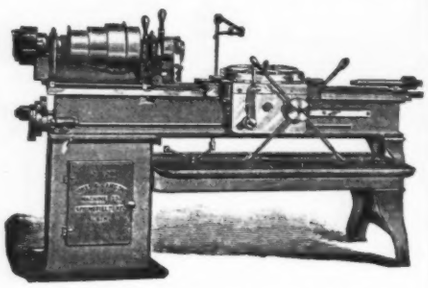

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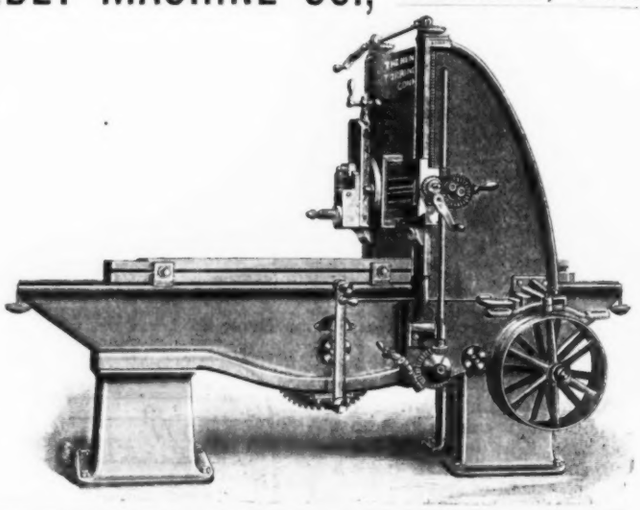

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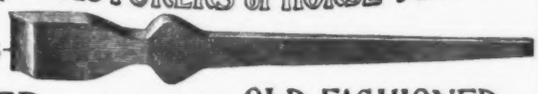

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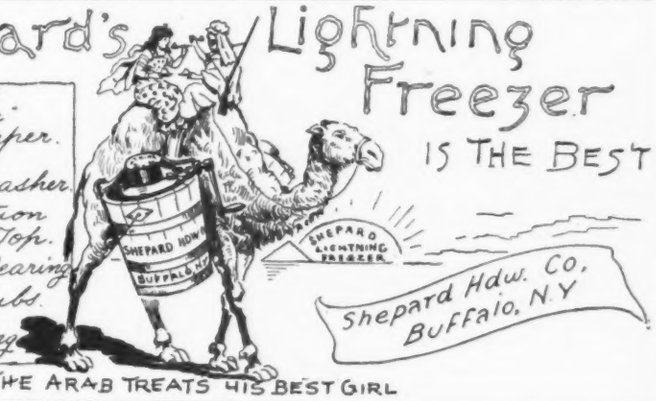

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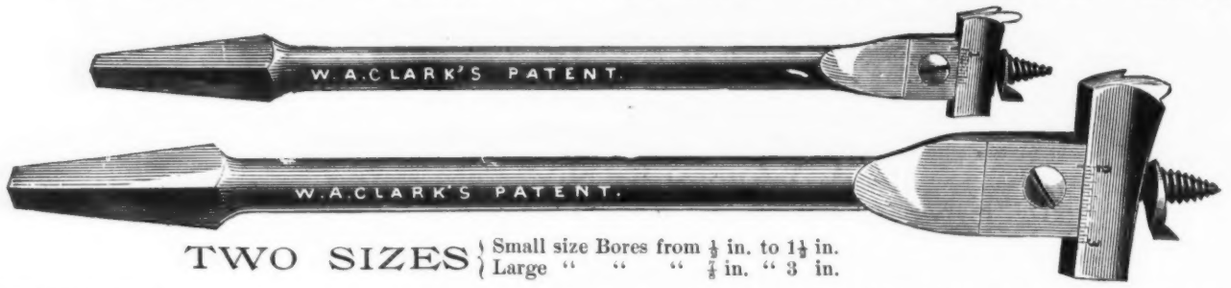

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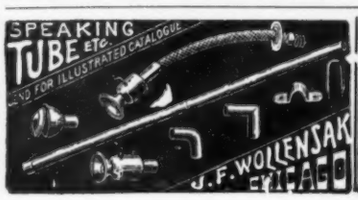

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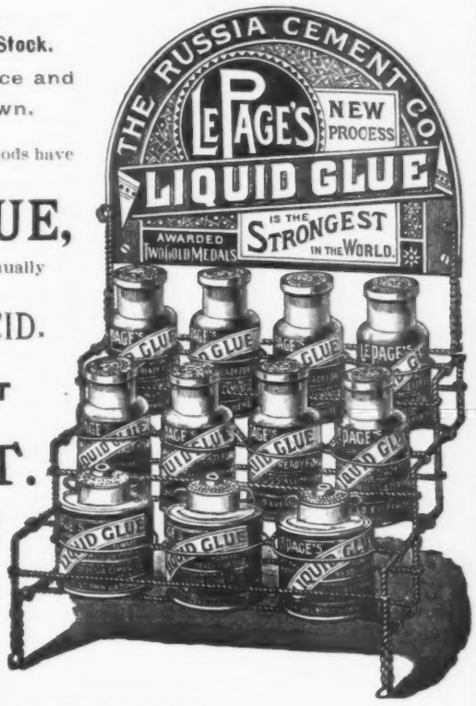

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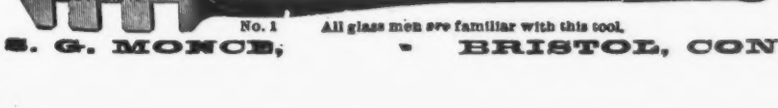

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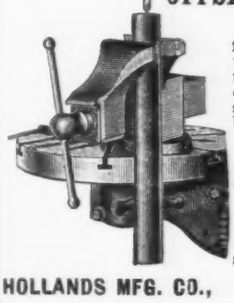

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Fig. 120.

Fig. 70.

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Fig. 209.

Fig. 381

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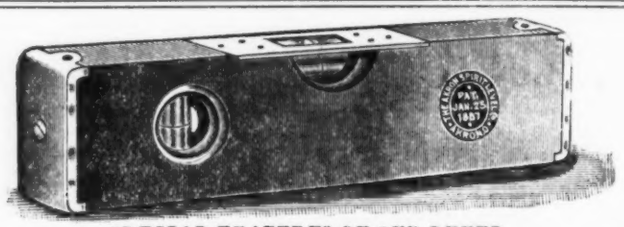

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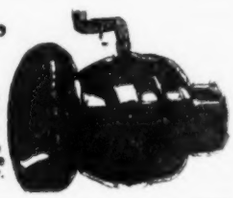

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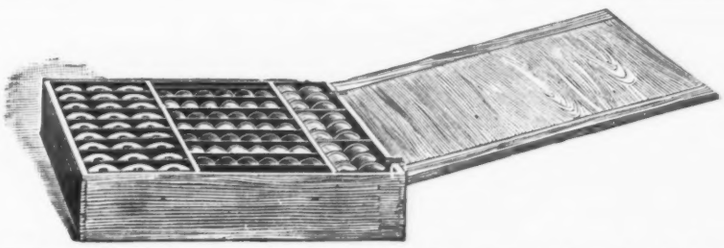

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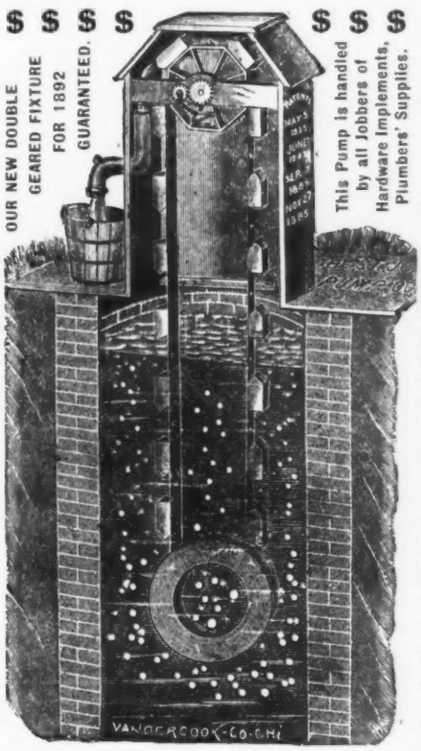

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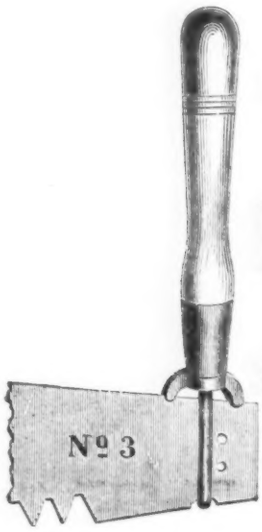

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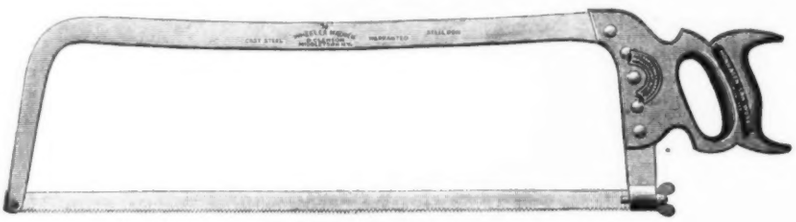

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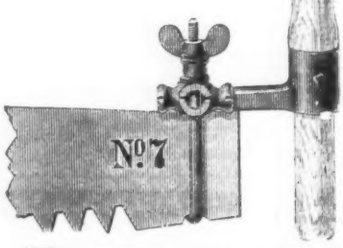

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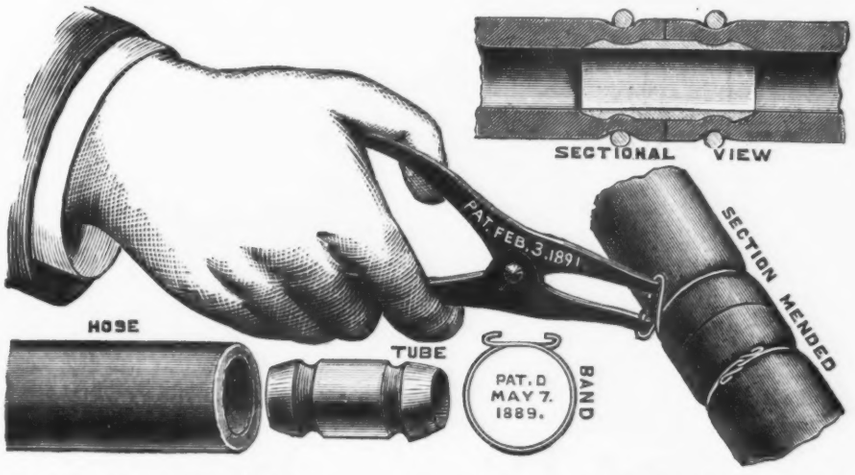

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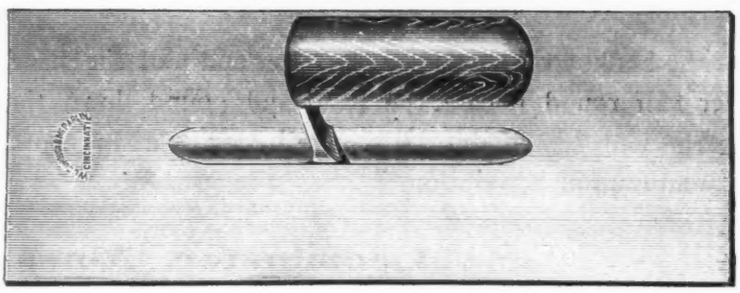

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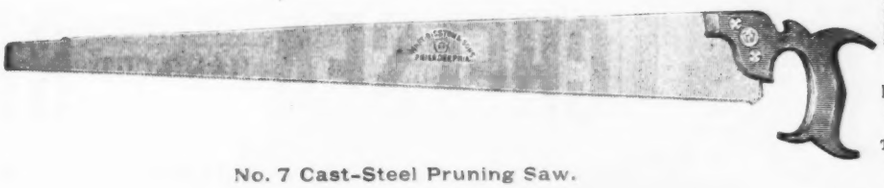

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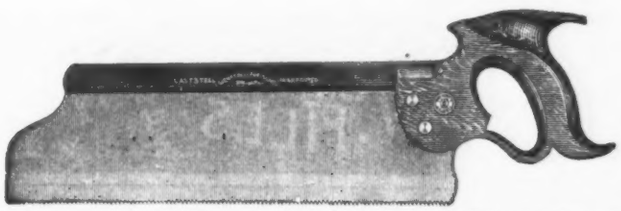

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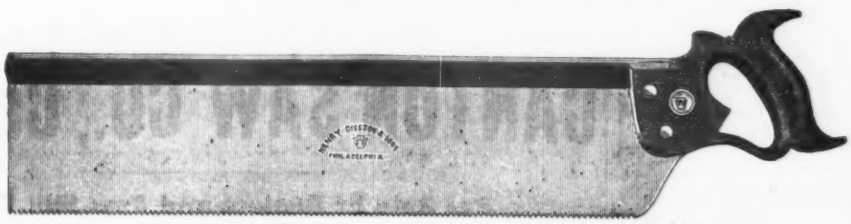

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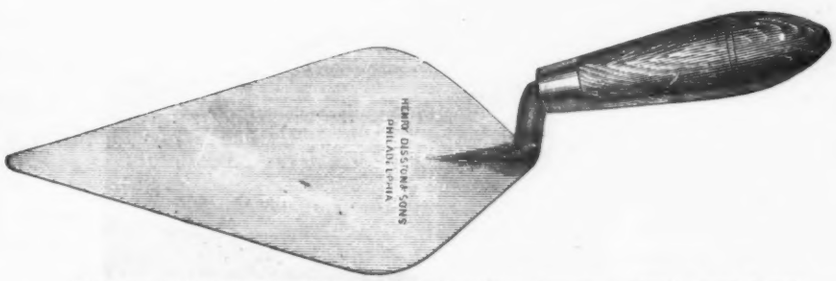

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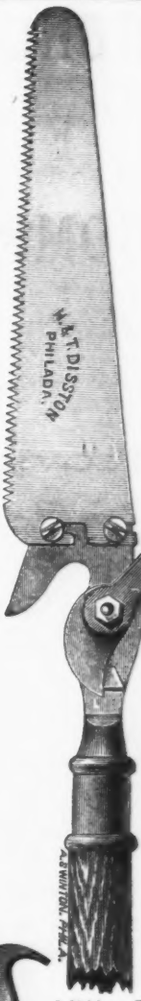

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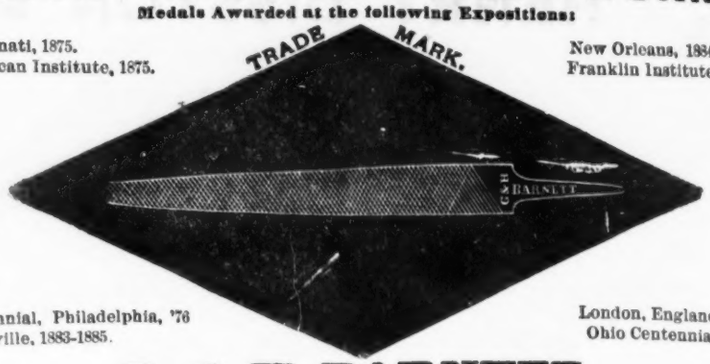

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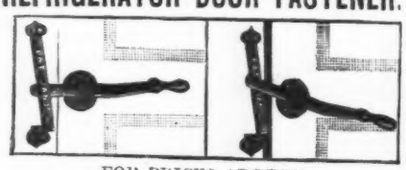

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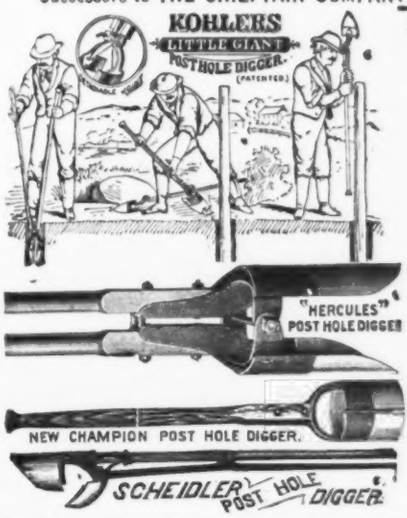

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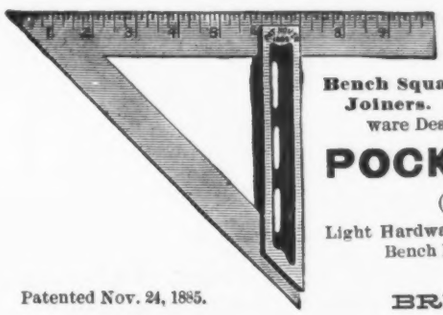

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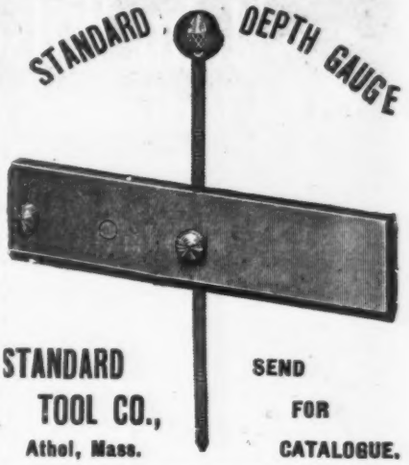

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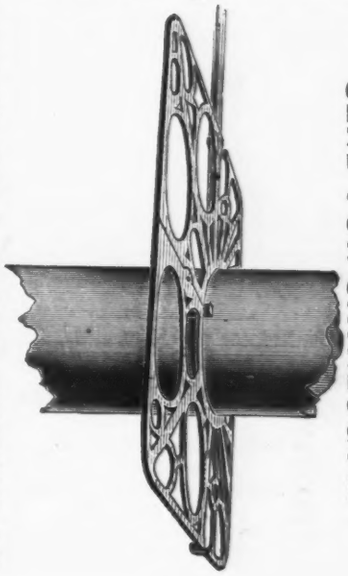

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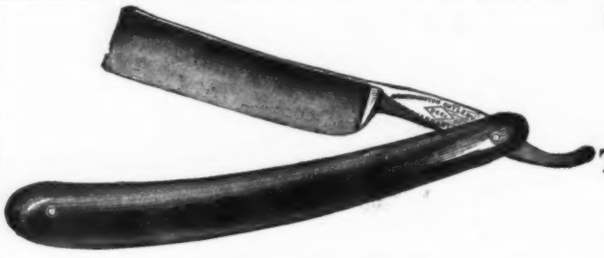

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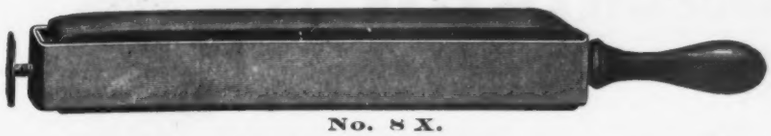

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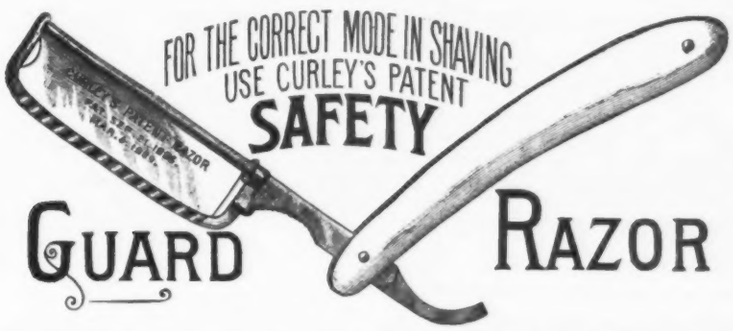

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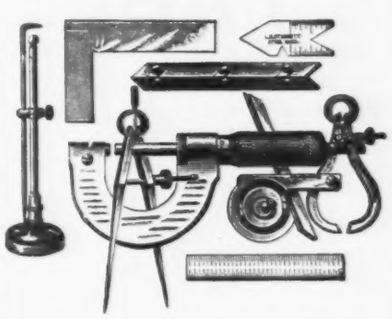
TOOLS



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These razors are **Not** made in Sheffield, England, nor in Germany, and we have **Not** been making them for one hundred and fifty years. They are made at Newark, N. J., United States of America, by skilled workmen and paid for in American money.

We use as our trade-mark the word **"Electric."** We Watch the blades from forge to finish and they are the **Finest Razors** made in the world to-day.

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Made in Plain Steel or Heavily Plated Blades, Hand Burnished.

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OF EVERY DESCRIPTION.

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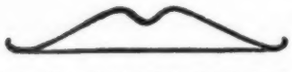

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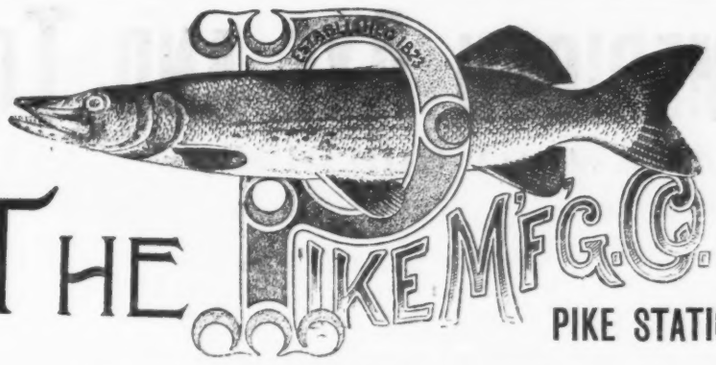

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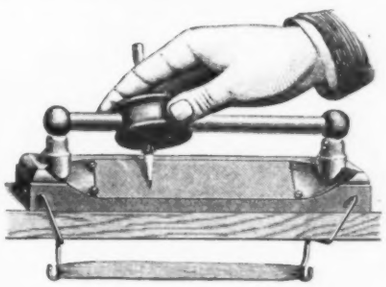

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THE PERFECT PENCIL POINTER.

Will save about one-half your pencil bill.
It is a practical machine, not a toy.
The only "Perfect" machine for the purpose
Does better work than can be done in any other way.
Does not break or waste the lead. Saves time.
Prevents soiling the hands. Any one can use it.

The above cut shows the Pointer attached to the edge of a table and shows how to take hold of the carriage in using. The pencil revolves as it is moved along on the surface of a file, which is especially made for the purpose. The entire simplicity of the whole machine makes it little liable to get out of order. By use of the clamps it can be instantly attached to desk or table, and as quickly removed, or can be used when held in the hand. The material and workmanship are the best and **EVERY MACHINE FULLY WARRANTED.**

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We have had one of your Pencil Pointers in use for several months, and it has done its work rapidly and well. We never saw a pencil sharpener before that would sharpen a pencil. Yours will do it every time and do it well.

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It suits me and does all that you represent.
C. R. ALTHOUSE, Cashier.

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This is the best thing of the kind I ever saw. One cannot break the lead while sharpening.

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ONE PIECE OF STEEL. 13 Inches Long.

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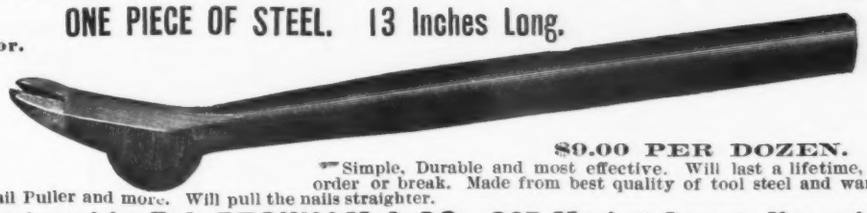

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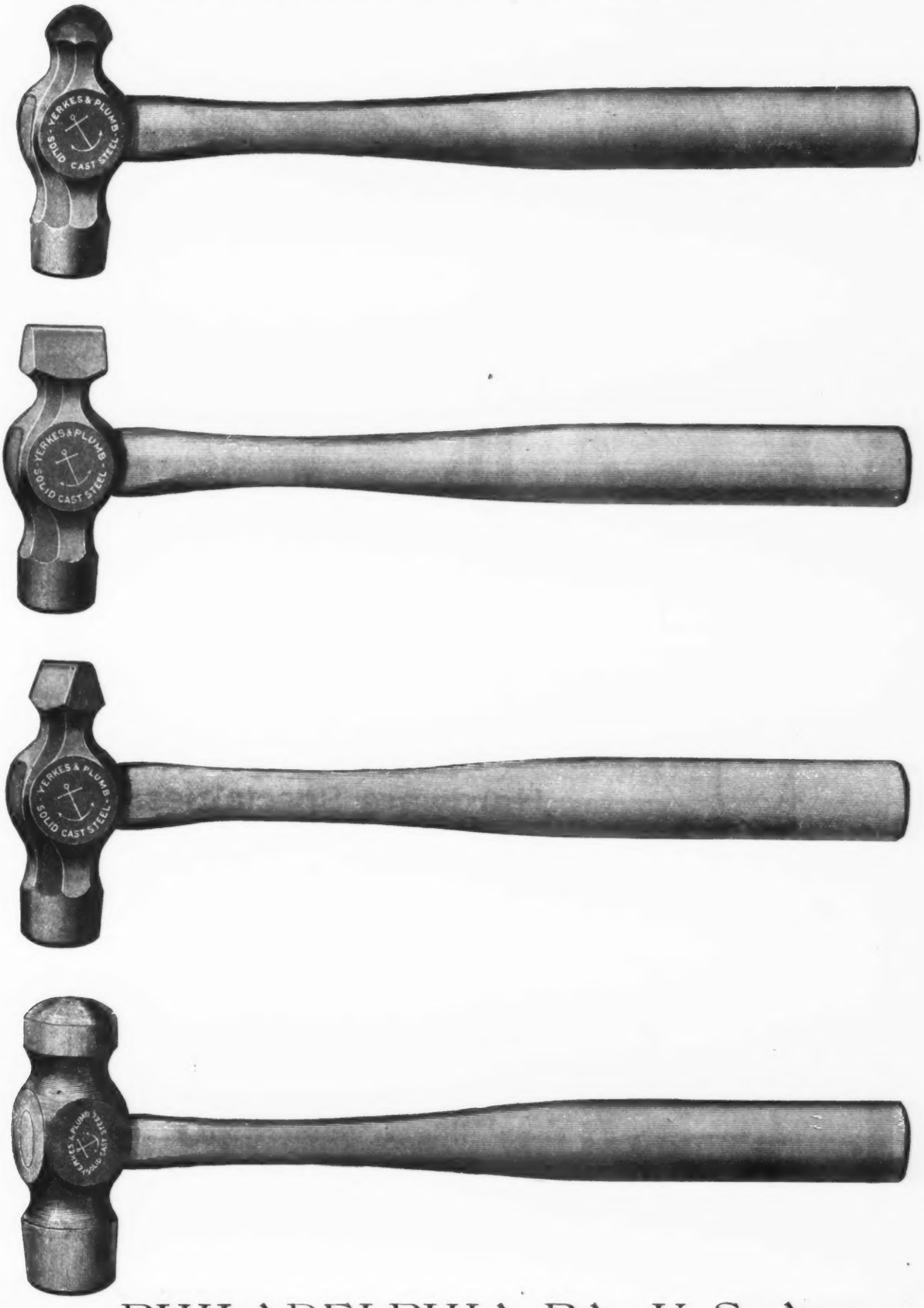

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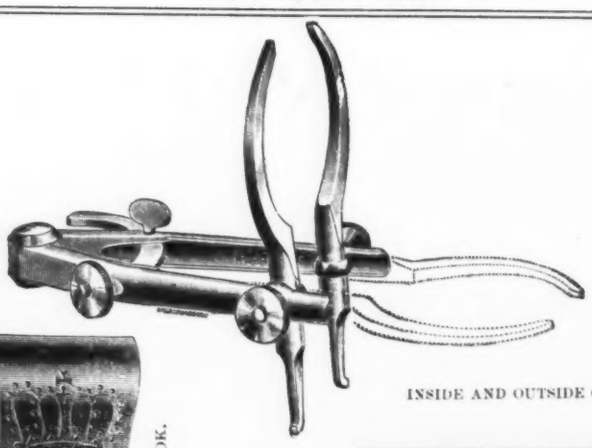

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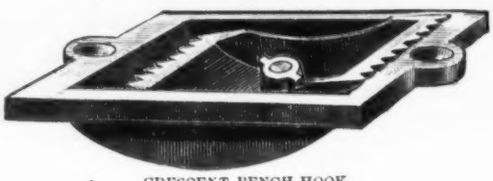

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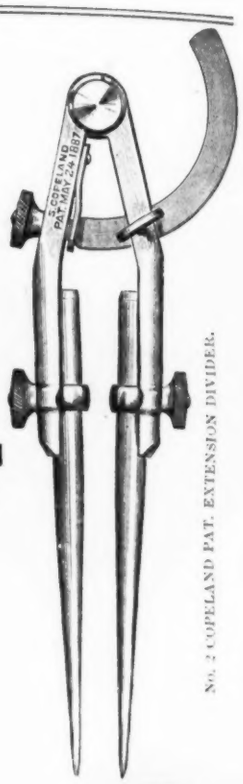

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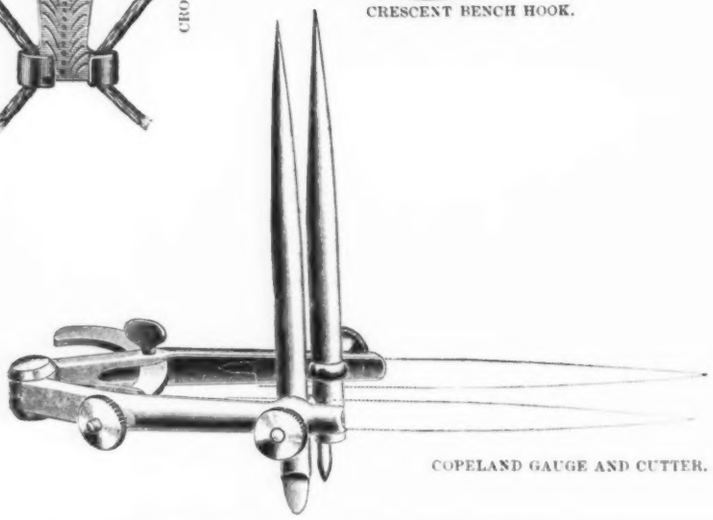

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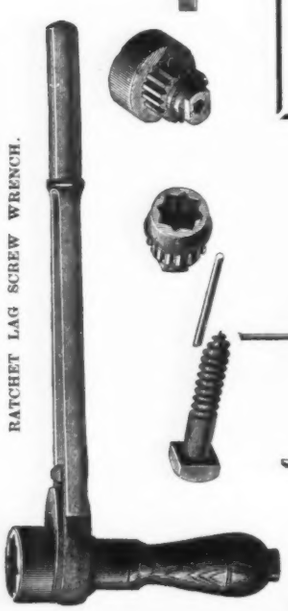

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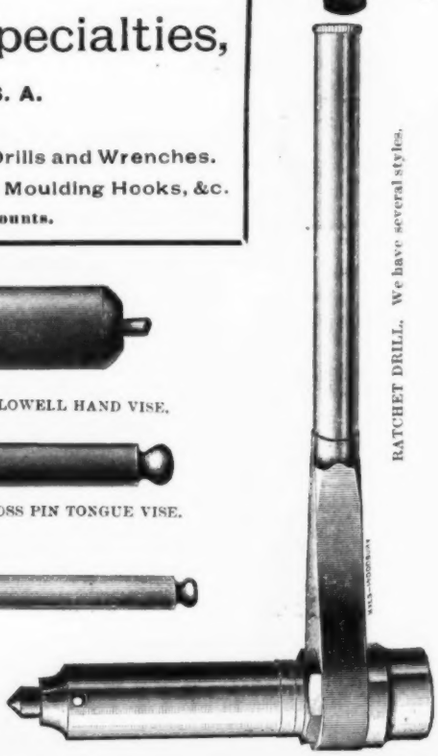
THE MOSS PIN TONGUE VISE.

THE LOWELL PIN VISE.



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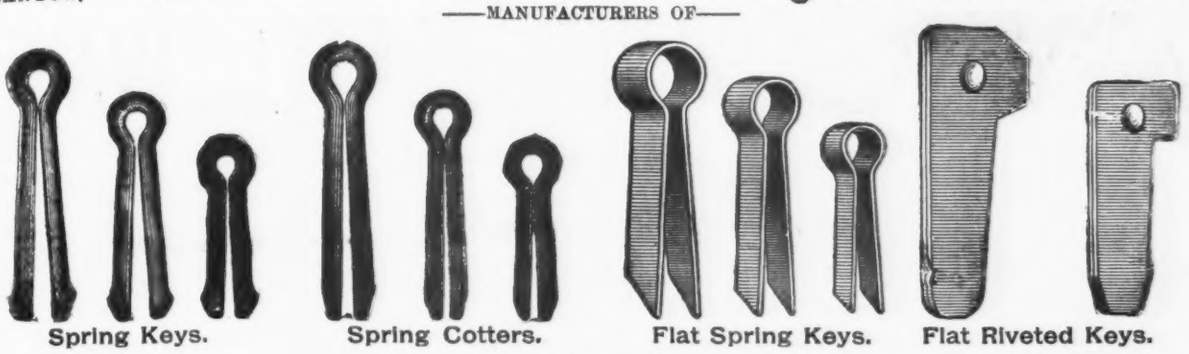

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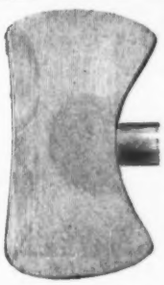

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It Combines greater Strength, Convenience and Durability than was ever obtained in a Common Driver

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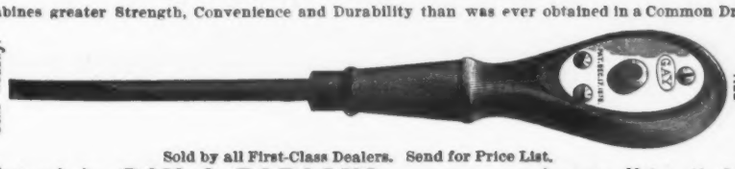

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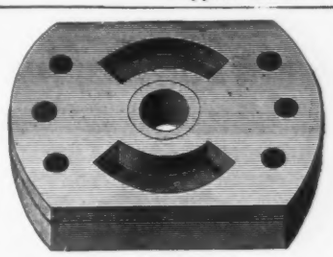

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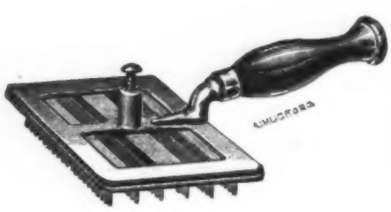

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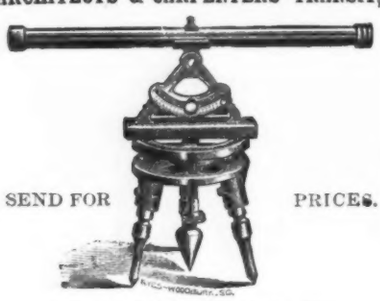

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It is made from the very finest and selected stock.
It is free from all impurities.
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It is pure, clean and bright.
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It will keep good any length of time, and in any climate.
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It is put up in the most convenient and attractive packages.
It will mend anything, and make it as good as new.
It costs no more than the other makes.

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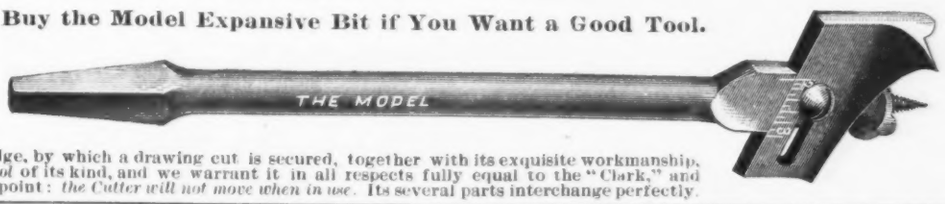
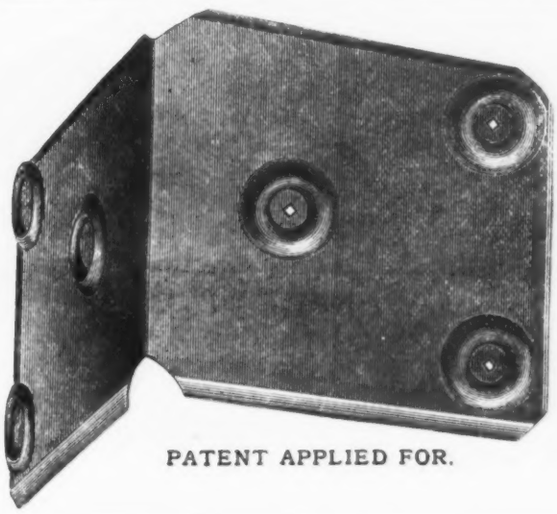
Sole Agents for the "W. A. Ives Co." celebrated brand of Augers, Auger Bits, Expansive Bits and other Boring Tools.

Buy the Model Expansive Bit if You Want a Good Tool.



THE superior excellence of this tool consists in the peculiar seat in which the Cutter is placed. The manner in which it is fitted into its seat, in which it is so firmly held as to be absolutely immovable in use, the curve of its cutting edge, by which a drawing cut is secured, together with its exquisite workmanship, all combine to make it a *Model Tool* of its kind, and we warrant it in all respects fully equal to the "Clark," and decidedly better in one important point: *the Cutter will not move when in use.* Its several parts interchange perfectly.



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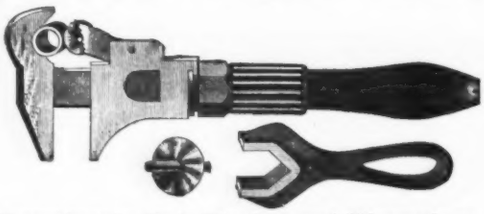

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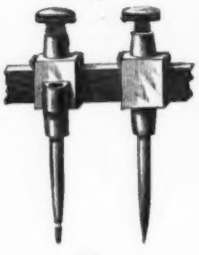
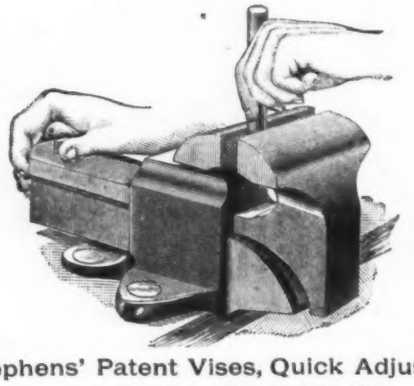


Chaplin's Patent Iron Planes, Corrugated Bottoms, Checkered Rubber Handles.



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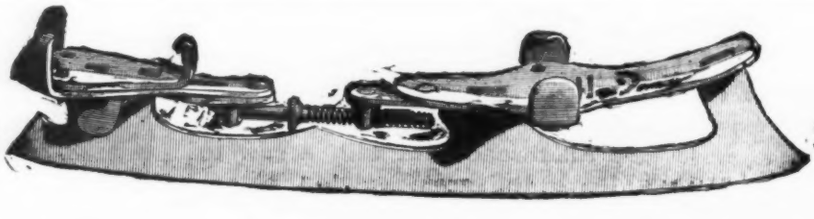

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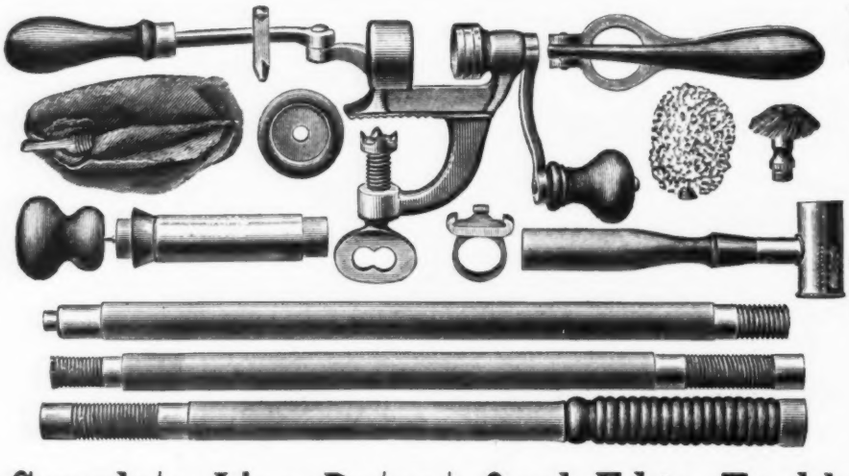

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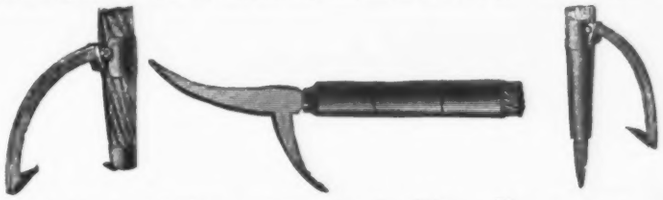

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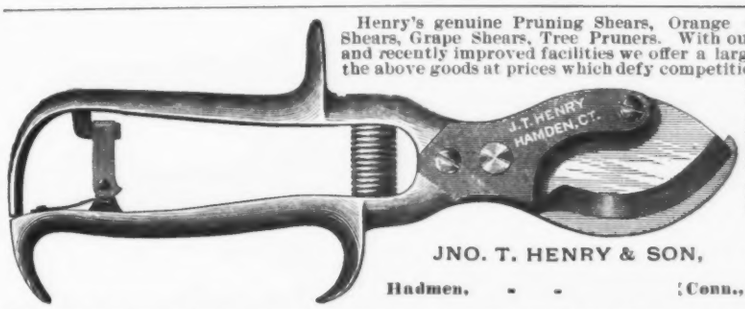

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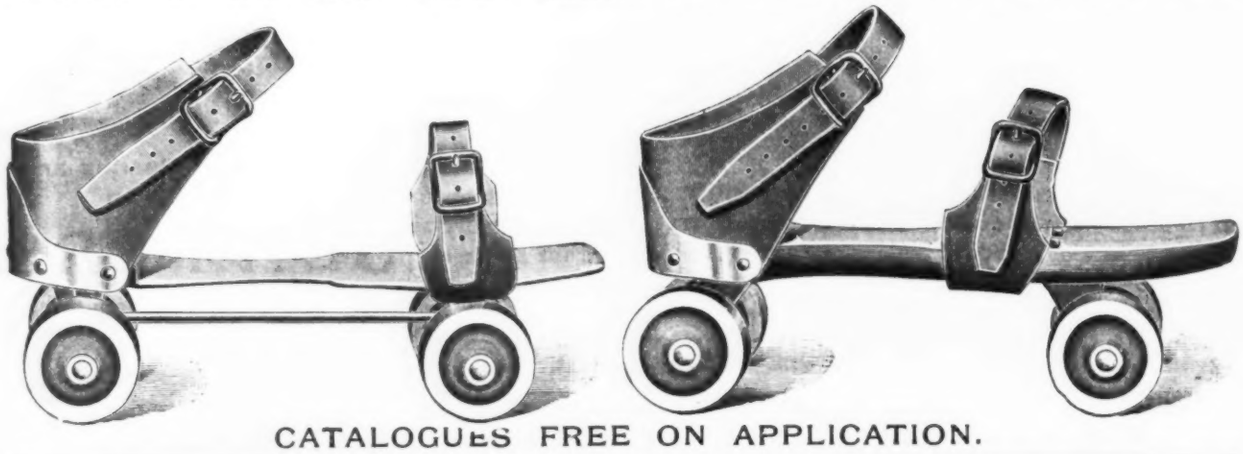

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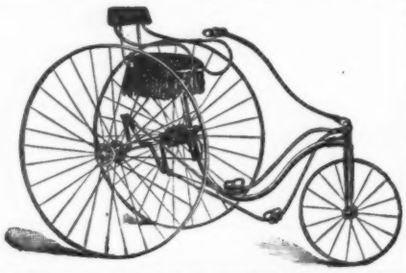

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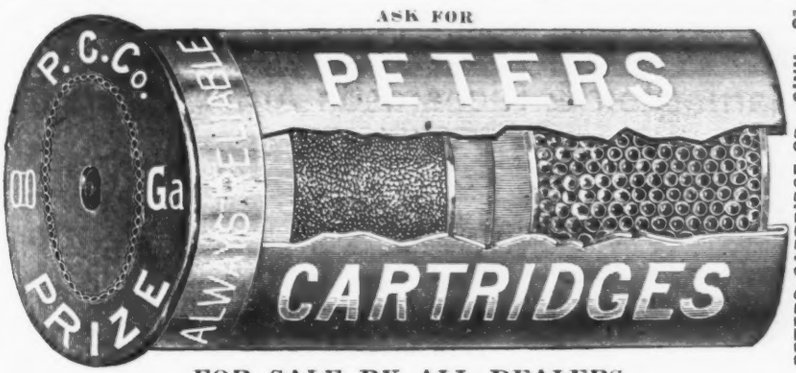

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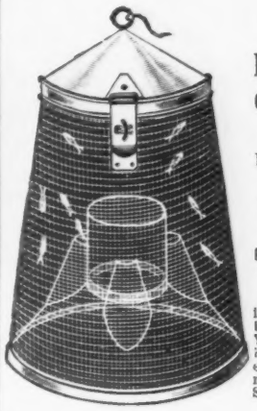

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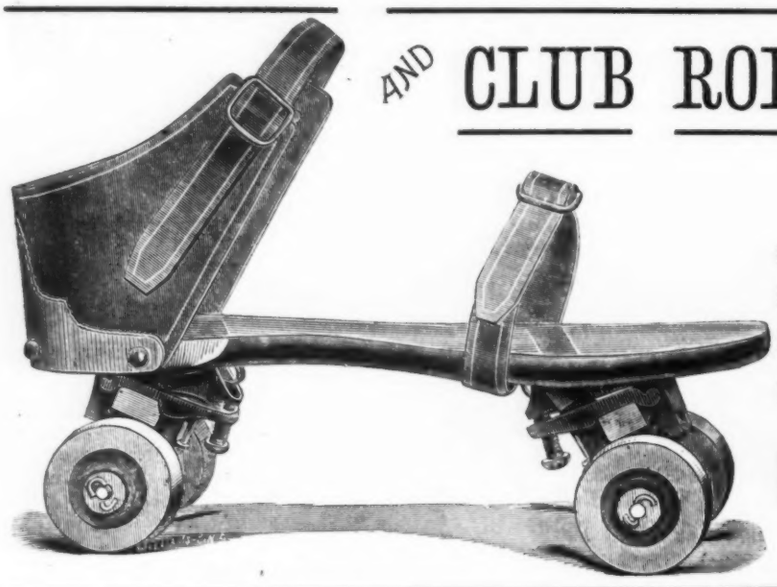

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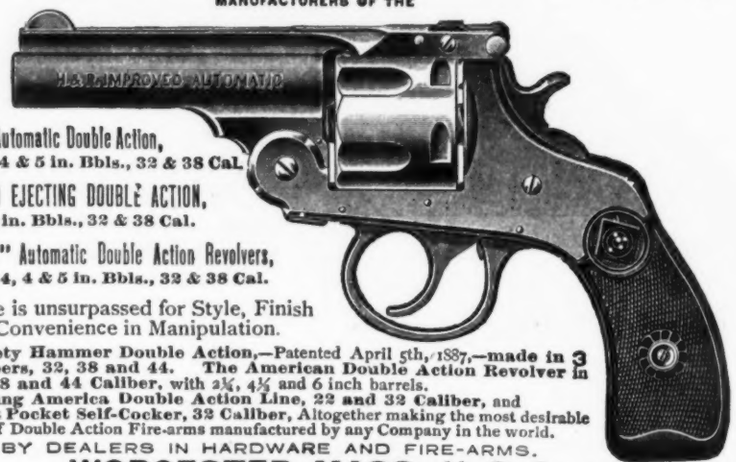

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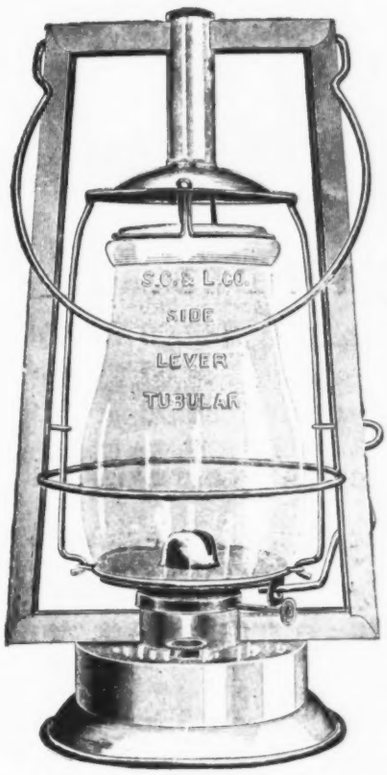

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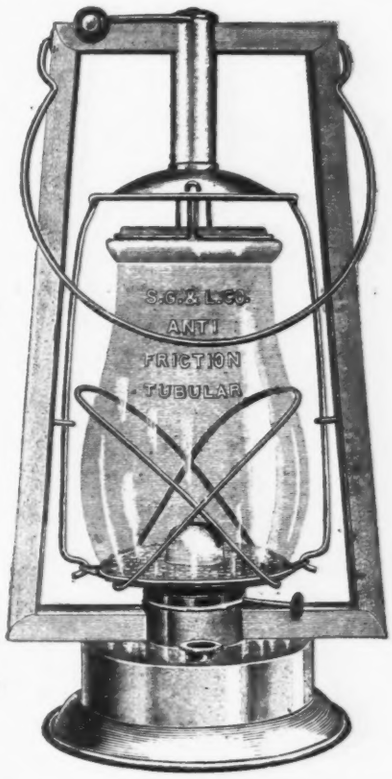

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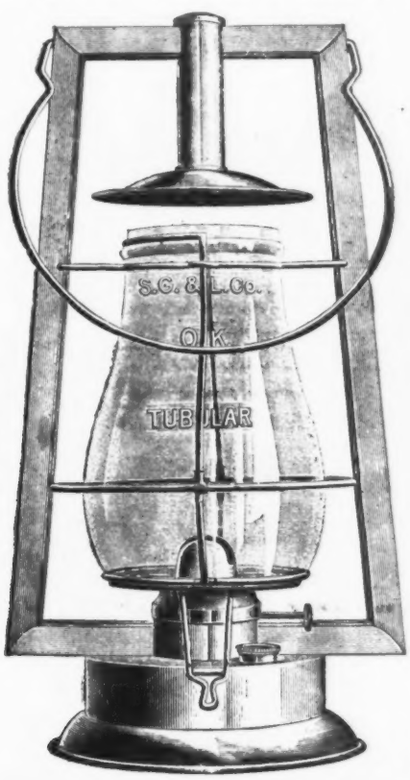

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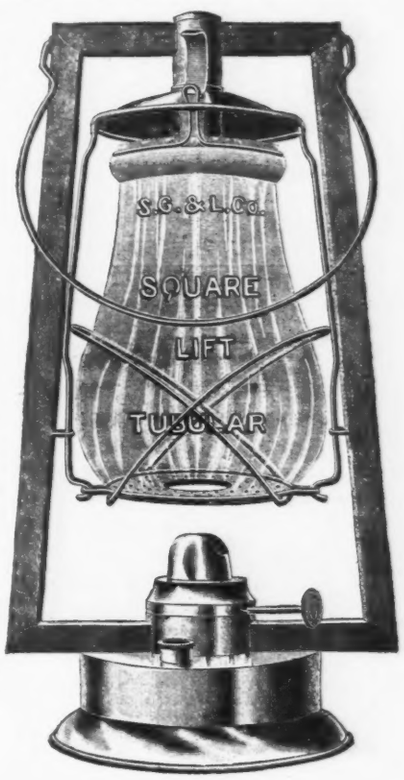

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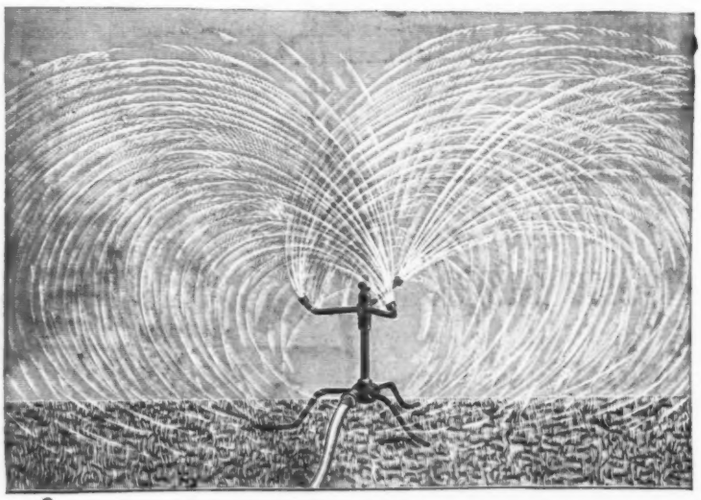

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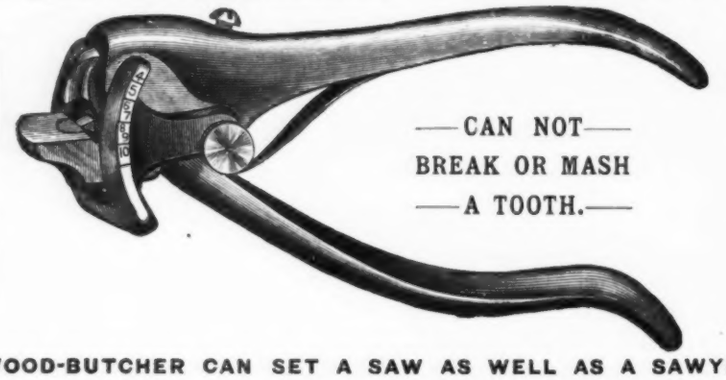

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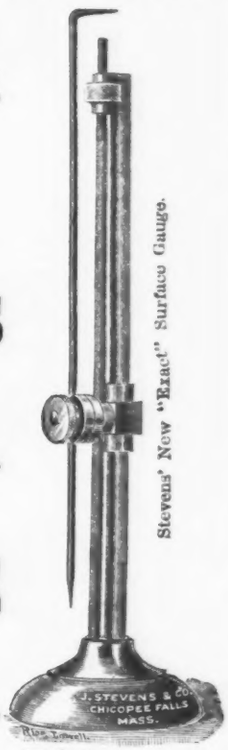

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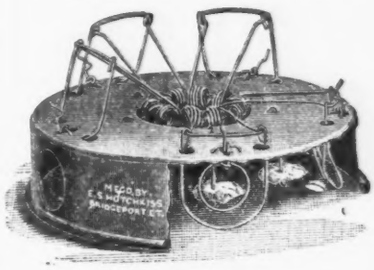

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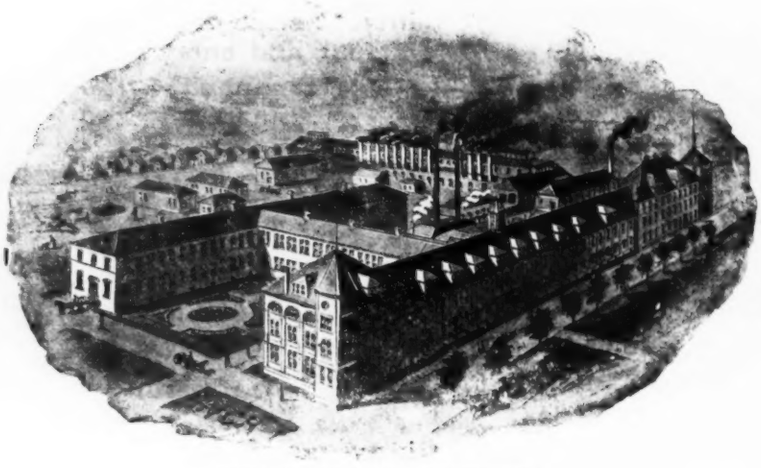

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While the cash drawer is open, the paper cannot be moved; making it necessary to close the drawer after each sale.

We guarantee this register to be more durable and more effective than any other Autographic Register of its class, and all we ask for it is **$20.**

The No. 69 Is operated by small steel balls, which are put into a large hopper inside of the register. The pressing of a key allows the ball to drop into a V shaped conduit, which is so arranged that the proprietor can see at a glance the amount that has been registered during the day.

This register is guaranteed to be equal to any similar register of its class, and all we ask for it is **$25.**

Before ordering any kind of Autographic Register, see Our No. 33.

We Make all Kinds of Registers

AT THE FOLLOWING PRICES:

$15, $20, $25, $30, $50, $65, $75, $85, $100, $125, $150 $175, $200, $225 AND $250.

TO USERS OF OTHER MAKES OF CASH REGISTERS:

If you desire to exchange your Register for a National, we will make you a liberal allowance for it.

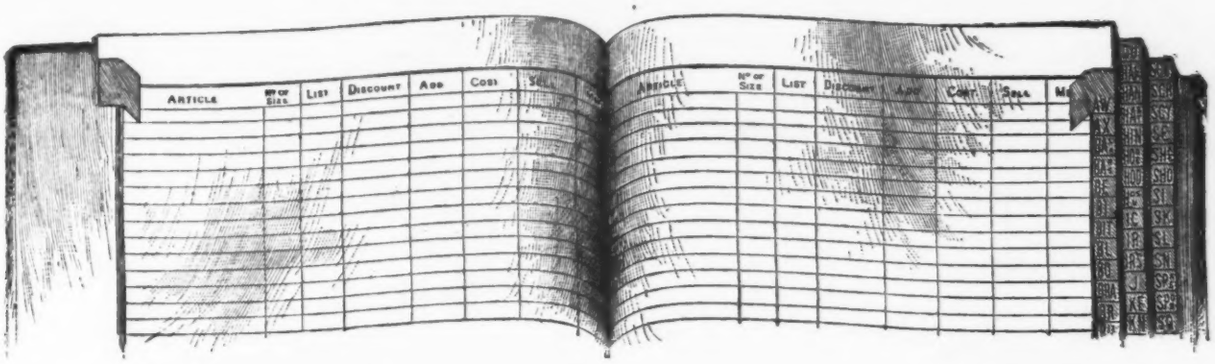
TUCKER & DORSEY MFG. CO.,

INDIANAPOLIS, IND.

SEND FOR OUR CATALOGUE.
WRITE FOR PRICES.

The Iron Age Hardware Price Book E,

WITH MULTIPLE INDEX (Patent Pending).



SIZE.—The book is 7 x 10 inches (much larger than Price Books A, B, C or D), 280 pages.

PAPER.—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

BINDING.—The binding is of the very best quality—flexible seal grained leather with pocket.

INDEX.—By means of the arrangement shown in the cut the index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line.

ARRANGEMENT.—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

SUPPLEMENT.—A 40-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

This book is issued in only one edition, **Price, $5.00.**

AD	CU	SCI
AN	HAL M	SCR
AU	HAN	SCY
AW	HAS T	SE
AX	HIN	SHA E
BAN	HOP E	SHO

Fac-Simile of Indexing.

Advantages of Multiple Index Price Book.

A SPECIAL feature of the book is the arrangement of the index characters, which instead of being alphabetical are arranged with special reference to the classification of Hardware goods, each index character giving the first two or three letters of the names of Hardware articles, as shown above.

The ease and convenience with which the book can be used is indicated in the following examples:

For Augers,	turn to	AU	For Chisels,	turn to	CHI	For Iron,	turn to	IR
" Apple Parers,	"	PA	" Cutlery,	"	CU	" Irons,	"	IR'S
" Saws,	"	SAW	" Cartridges,	"	CAR	" Shovels,	"	SHO
" Pumps,	"	PU L M	" Rules,	"	RU	" Grindstones,	"	GRI
" Bits,	"	BIT	" Locks,	"	LO	" Stones,	"	STO

Special care has been taken to make the classification as indicated in the index correct and comprehensive, making provision for all Hardware articles and giving sufficient space for the keeping and recording of prices. It is thought that every strictly Hardware article has its first two or three letters given, thus permitting immediate reference to it by a single motion.

It is, however, obvious if any articles are not directly designated by the index characters, that the index being alphabetical in its arrangement indicates the place where quotations on such articles should be recorded. The supplement, however, may be found useful for quotations on any outside goods which the Hardwareman may desire to keep prices on, while at the same time it may be used if necessary for any overflow of matter from the preceding pages, or to contain list prices or other matter relating to goods.

Hardware Classification.—A pamphlet containing a classification of the leading Hardware articles is furnished with the price book.

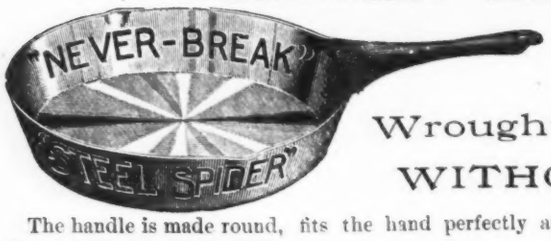
Standard Lists—In connection with this price book a set of *The Iron Age* STANDARD HARDWARE LISTS can be used with great advantage.

This price book, which has been prepared by R. R. Williams, Hardware Editor of *The Iron Age*, is presented to the attention of Hardwaremen in the confidence that it will be found a most valuable aid in keeping track of prices.

Sent, Postpaid, on Receipt of Price, by

DAVID WILLIAMS, Publisher and Bookseller, **96-102 Reade St., N.Y.**

"NEVER-BREAK"



COLD HANDLE
Wrought Steel Spiders
WITHOUT RIVETS.

The handle is made round, fits the hand perfectly and is ALWAYS COOL. The **"NEVER-BREAK"** Spider is the ONLY Wrought Steel Spider manufactured WITHOUT RIVETS complete from ONE PIECE OF METAL.

Wrought Steel Kettles, Griddles, Stew Pans, Stew Pots, Maslins, Scotch Bowls.

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THE BRONSON SUPPLY CO.,
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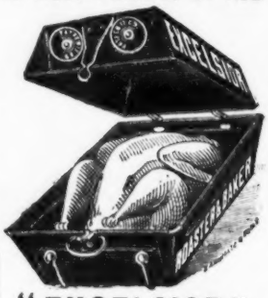
THE LATEST IMPROVED.
THE MOST PERFECT OF ALL.



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Roasting and Baking Pan.

7 SIZES
MADE OF
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Steel.

Manufac'd by
M. F. Koenig & Co.,
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SOLE AGENTS,

The Universal Lawn-Keeper.

Makes clean lawns possible with very little labor. It accomplishes more in an hour than can be done in a day by any other means. Every person having charge of a grass plot wants one.

It is a Weed Eradicator.

ORDER EARLY.

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AMERICAN KNIFE SHARPENER

For Carving and Bread Knives, Shears and Scissors.

Works perfectly and sells at sight.

Sample by mail, 25 cts.

Send for Circular and Prices.

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"Empire" Cold Handle Steel Spiders.

PATENTED.

The "Empire" Cold Handle Spiders are made from cold rolled wrought steel of the highest grade and finish, and are stamped from a SINGLE PIECE, and polished perfectly smooth and bright. The thickness of the steel of which the Empire Spiders are made (No. 14 Standard gauge) is a **guarantee** that they cannot **break, bend or warp.** An important feature also is that they are made **without rivets,** and **cannot leak** or the handles become loose.

The handle is reinforced in an attractive manner with a cover made of heavy tin, making a hollow ventilated handle which keeps always cool and comfortable to the hand.

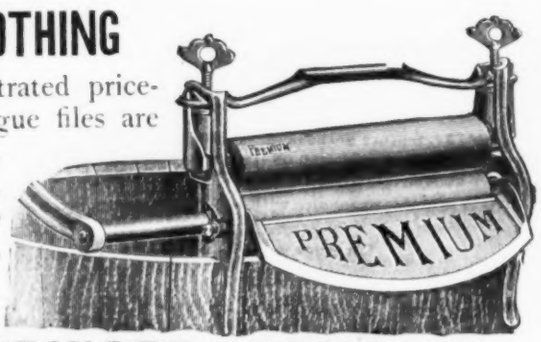
The Empire SPIDERS will be found on inspection the most perfect ever made and cannot fail to give satisfaction. Our 1890 Catalogue of Patented Specialties, Acme Fry Pans, and Edgars' Patent Stove Shovels, mailed on application.

New York Stamping Co., Sole Manufacturers,

North 11th and Berry Streets, Brooklyn, E. D., New York.

IT COSTS NOTHING

to send for our illustrated price-list, and your catalogue files are incomplete without it. Write to the Factory, Montpelier, Vt., or to our Chicago store, 68 Lake St.



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BUY THE STEEL EDGE DUST PAN,

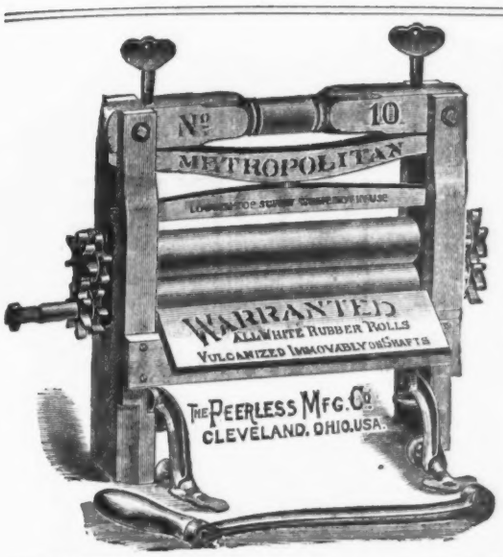
—SOLD BY—

ALL JOBBERS OF TINWARE AND HOUSE-FURNISHING GOODS.

—MANUFACTURED BY—

Steel Edge Stamping & Retinning Co.

89 STATE ST., BOSTON, MASS.



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This differs from our other wood frame wringers of medium price in having malleable iron swinging clamps of a strong and improved pattern, that swing under the wringer, and a folding apron, allowing the machine to be closely packed for shipment, and it is preferred by many because of the small space it occupies in storage. It is a handsome, well proportioned machine, of hard maple frame, the wood being selected, free from defects and blemishes. Two top thumbscrews, metal journal boxes and oil cups combined, double gears, etc.

Furnished in natural wood or cherry stain without extra charge.

Write for Prices and Catalogue.

THE PEERLESS MFG. CO.,
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DID YOU EVER STOP TO THINK

That the Cash-Drawer is the beginning of many a merchant's fortune and misfortune? That it must be protected just like your bank account? That we do not sell Cash Registers *on paper* and when you order try to sell a "better one"? The Sun Register is sold *on honor*; the Cathedral Gong Money Drawer *on its merits*, and our Coffee Mills and Rat Traps sell well *on the counter*. We make these goods at the rate of two per minute, our own patents, and don't imitate or follow.

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SIX POINTS

Strong, Simple,
Rapid, Clean,
Easy to Operate,
Economical, are
The Essential Features
of the "WEISELL."
Have you bought a
Sample? If not, write to

DIETHER & BARROWS,
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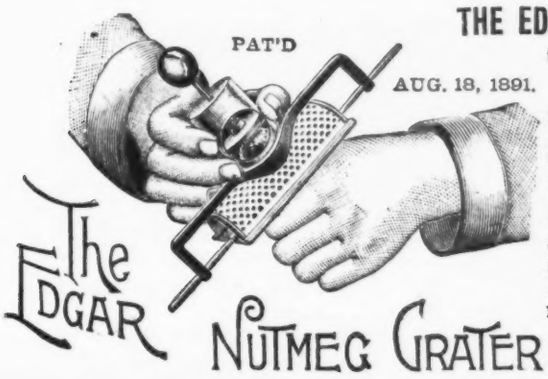

The EDGAR NUTMEG GRATER

THE EDGAR NUTMEG GRATER

POSITIVELY THE ONLY GOOD NUTMEG GRATER EVER MADE.

It is the old-fashioned Nutmeg Grater, with a carrier for HOLDING the Nutmeg, so attached as to move freely, forward and back, and from side to side, preventing the grated Nutmeg adhering to the surface of the Grater and bringing every part of its surface into use. Using this Grater, the Nutmeg can be grated to the merest shell without injury to the fingers or nails or dropping the Nutmeg. Its simplicity commends it. It is durable and economical and retails for 20 and 25 cents each. Liberal discount to the trade. Ask your jobber for the EDGAR NUTMEG GRATER.

EDGAR MFG. CO.,
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THE BICYCLE STEP LADDER.

The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made.

Ladders are not *Suspended*, but *Supported* from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit.

Send for illustrated catalogue and prices to

The Bicycle Step Ladder Co.,
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OUR QUICK GRINDER

Will just suit your trade. They are strong, neat, easy to work and do their grinding rapidly. They are the peers of any Coffee Mill on the market. We solicit a trial.

THE CHILLICOTHE MFG. CO.,
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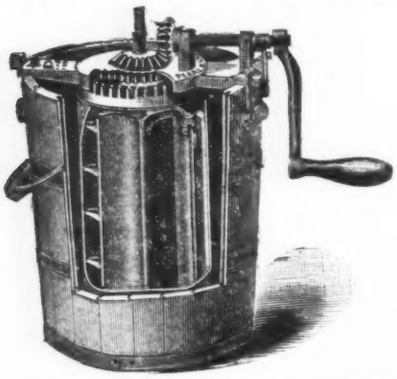
COFFEE MILLS

NO OTHER FREEZER WILL DO



AS MUCH OR SELL AS READILY, GIVE THE SAME SATISFACTION ON ACCOUNT OF THE MANY USES IT CAN BE PUT TO, THE EASE WITH WHICH IT CAN BE OPERATED AND ECONOMICAL USE OF ICE, AND THE RAPID FREEZING QUALITIES POSSESSED BY IT, AS

THE "PEERLESS."

WHY BUY THE CHEAPEST APPARATUS IN THE MARKET AND INJURE YOUR TRADE WHEN THE CHEAPEST IS MORE EXPENSIVE THAN OUR BEST FREEZER? FOR PRICES AND DISCOUNTS, WRITE TO

THE PEERLESS FREEZER COMPANY

CINCINNATI, OHIO.
Successors to THE GOOCH FREEZER COMPANY.

CENUINE

FLAX FIBER-WARE

has **come to the front** to stay. The *Best, Largest, Handsomest, Quickest Sellers.* No. 5 (colored) and 5X white) have *Artistic Hand-Painted Decorations* in oil colors. This is an era of art decoration and **No Dealer can afford to be without these Decorated Goods,** which always bear above trade-mark, and are made only by the

Standard Fiber-Ware Co.,
MANKATO, MINN.

Hardware dealers, use Roll Wrapping Paper on the Hopking Holder, and save money.

American Roll Paper Co.,
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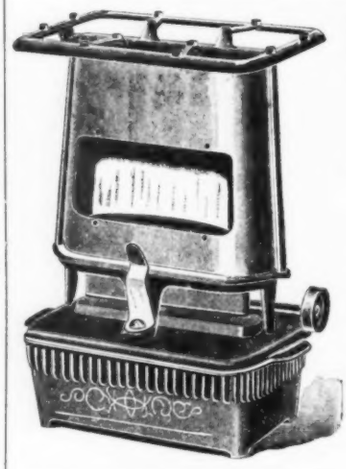

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One, Two and Three Burners.

Oil Reservoir one piece of casting without seam or joint.

NO CHANCE TO LEAK.

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CLEVELAND, OHIO.

ESTABLISHED 1840.

A WORD TO THE WISE IS SUFFICIENT.

When you purchase a Lantern, Street Lamp, or Driving Lamp, remember the

"DIETZ" Make

is the best. Our goods have stood the test of time and are safe and reliable. The name **"DIETZ"** is plainly stamped on them. Our specialty is **Tubular Lanterns, Street Lamps and Driving Lamps.** We make a large variety being the oldest and largest house in our line.

ASK FOR THEM!

R. E. DIETZ COMPANY,
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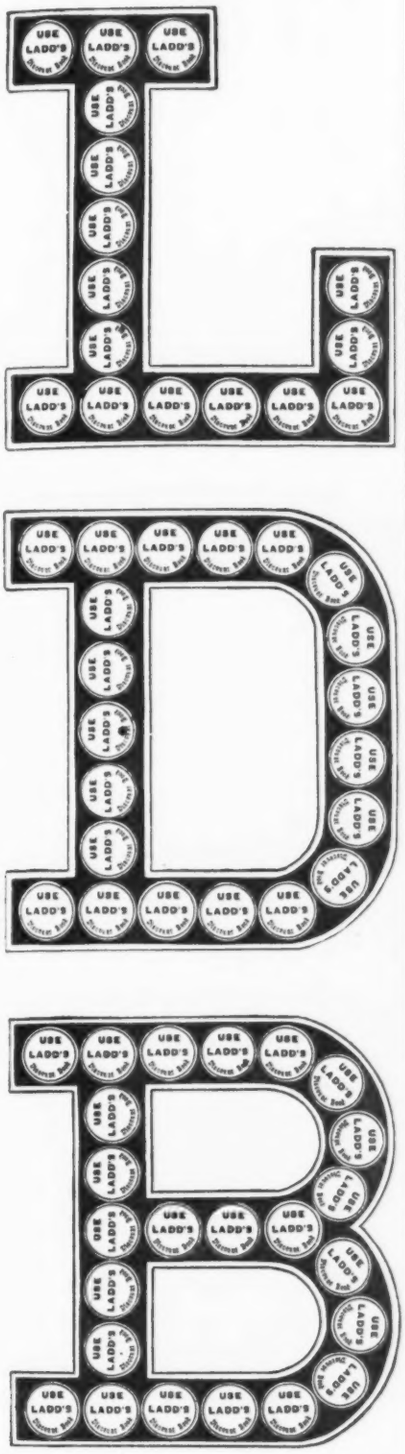

ACCURATE,
RAPID,
CONVENIENT,
PRACTICAL.

PRICE, THREE DOLLARS.

DOUBLE INDEXED EDITION, $4.00.

Sent, postpaid, to any address upon receipt of price.

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CHEAP EGGS SOON!

This new way of cooking eggs (by steam) is becoming very popular.

The best is none too good for people now-a-days, especially when half a dollar will obtain it. Be sure and have some **Buffalo Steam Egg Poachers** always on hand, so not to disappoint customers.

No. 1, Plain, $6.00 per doz.
" 2, Retinned, 9.00 "
Discount, — per cent.

SOLE MANUFACTURERS,
SIDNEY SHEPARD & CO.,
BUFFALO, N. Y.

A DIFFICULT PROCESS MADE EASY
THE BUFFALO STEAM EGG POACHER
POACHES EGGS BY STEAM.

WHEN READY FOR THE TABLE THE EGGS ARE OF UNIFORM SHAPE AND INVITING APPEARANCE.

MAY BE TRANSFERRED TO TOAST OR PLATE WITHOUT DANGER OF BREAKING.

Mrs. Gen. Lew Wallace Says:
" Lifting the cover discloses the delicate morsel, the yolk gleaming in soft color through a cloud of transparent whiteness. Have ready the buttered toast; the eggs slip each from its own little cup easily as from the parent shell: a dish fit to set before a king. Easy to have a delicious luncheon with the aid of the bright utensil which makes cooking so easy, it seems to act with its own intelligence. In the sea of trouble awaiting the young housekeeper pushing out into unknown depths, the Buffalo Steam Egg Poacher will be found a sure thing to rest upon when all else fails."

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THE BEST

They are Economical, Simple, Durable. Do not tear the clothes, and sell more readily than any other make, hence the best. Write

THE ANTHONY WAYNE MFG. CO.
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THE BEST HOLLOW WARE

" HIGH GRADE "
POTS, KETTLES,
SKILLETS, GRIDDLES,
BOWLS, BROILERS,
IRON HEATERS AND BOILERS,
" EXTRA FINISHED,"
Are Made by
WAGNER MFG. CO.,
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Write for Illustrated Catalogue and Price-List.

THE CLARK MFG. CO.,

Blind Hinges, Gate Hinges, Door Butts,
And other HARDWARE SPECIALTIES,
BUFFALO, N. Y.

THE NORWICH LOCK MFG. CO.,

OF ROANOKE, VA.

Roanoke Va., March 1, 1892.

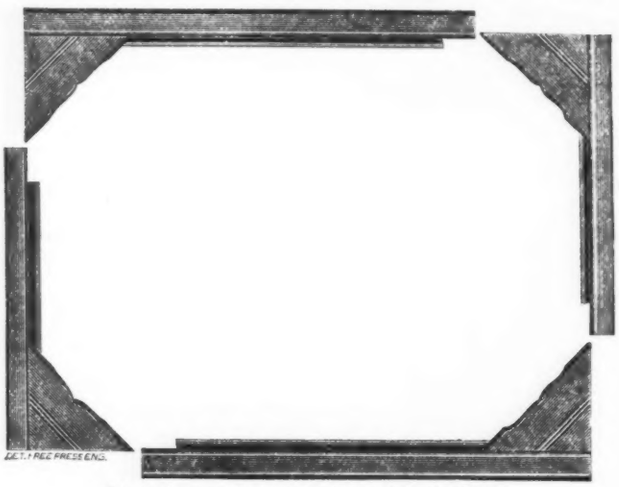
Our new catalogue and price-list is now ready for distribution. It is a book of 404 pages, 10½ x 12½, printed on heavy paper, and contains illustrations and descriptions of a complete line of locks, knobs, keys, escutcheons, bell pulls, padlocks and builders' hardware.

A copy will be furnished without charge to any house whose purchases from us during the year 1891 amounted to $100 net, and will be sent with the first goods ordered, or by express, not prepaid. To others we make a charge of $5.00 per copy, which amount will be deducted from account as soon as same amounts to $50.00 net. The book is too large to be sent by mail.

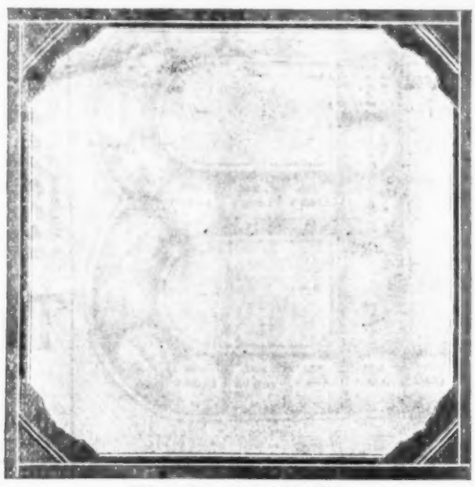
THE NORWICH LOCK MFG. CO.,

ROANOKE, VA.

PHILLIPS WINDOW SCREEN FRAMES.



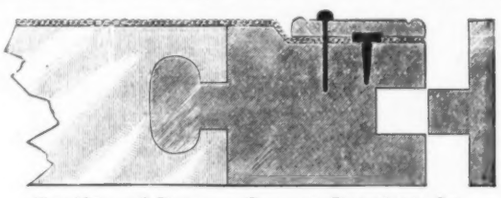
FRAME READY TO GO TOGETHER.



FRAME FINISHED.

Formerly we have never been able to make enough of these frames for our trade. This season we thought we would see if it were possible to do so. Our machines have been running for almost a year without a stop.

Notwithstanding our trade has been 50% larger than ever before, we now find ourselves with most of our back orders filled and a small stock, but good assortment, on hand. We expect to be able to make prompt shipments on frames from now on. For the benefit of those not familiar with our frame, we insert the above cuts and mention the following reasons why more Phillips Frames are sold than of any other: **They are Simplest, Lightest, Strongest, and the wire cloth is strained by fastening the molding (see sectional cut). The parts need not be fastened and can be used over again. Any man or boy with horse sense and a saw and hammer can use them and do good work.**



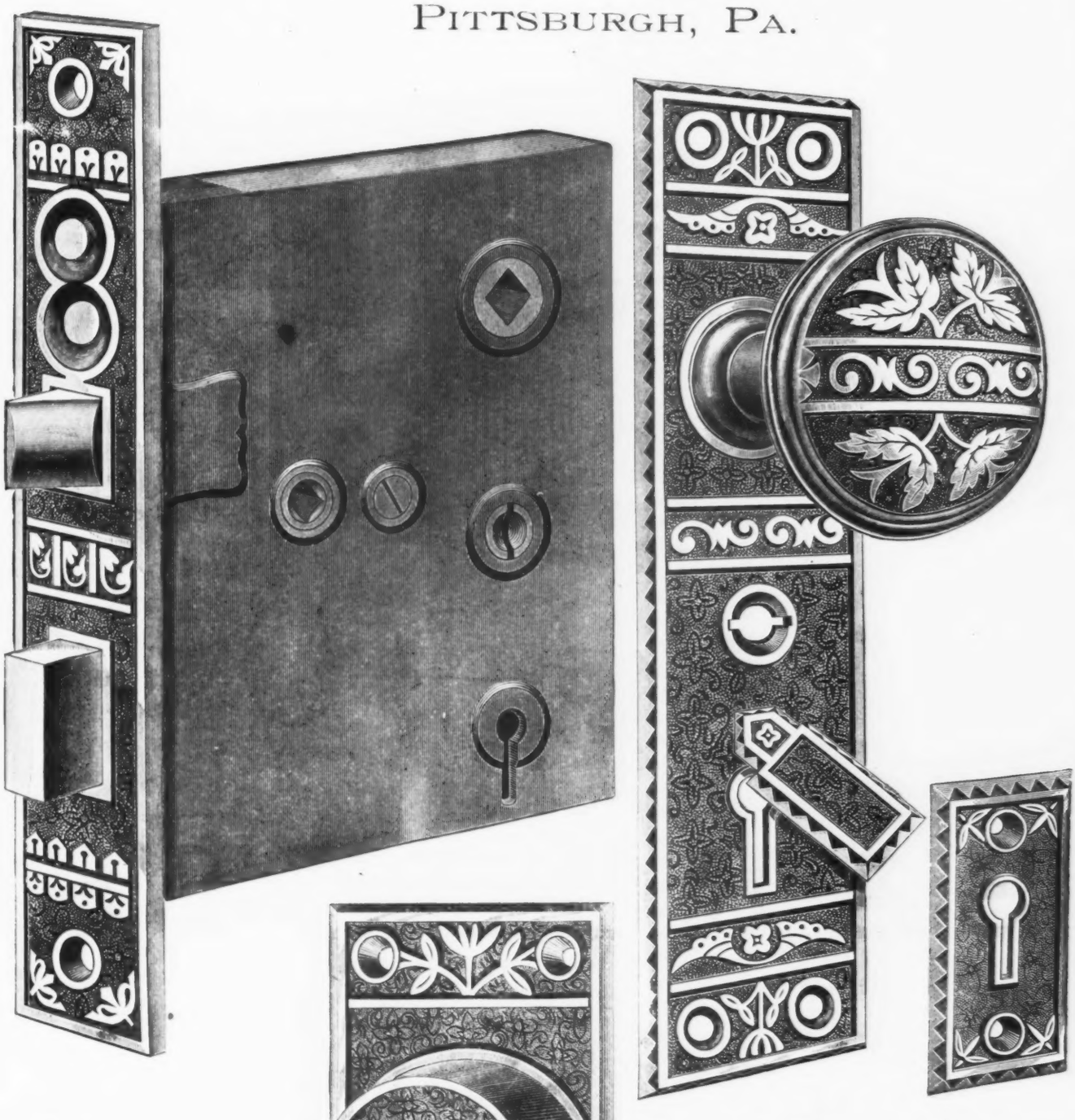
Section of Frame, Corner Bracket, &c.

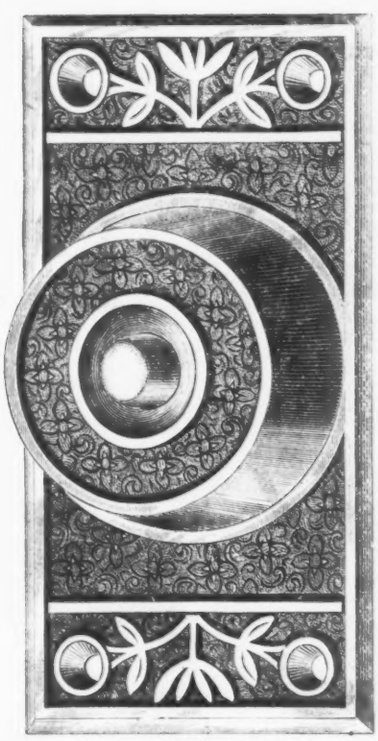
If you haven't our catalogue of Screen Doors, Window Screens, &c., send for it. Would also be pleased to tell you about our **SCREENS MADE TO ORDER.**

A. J. PHILLIPS & COMPANY, - - FENTON, MICH.

BRITTAN, GRAHAM & MATHES,

PITTSBURGH, PA.





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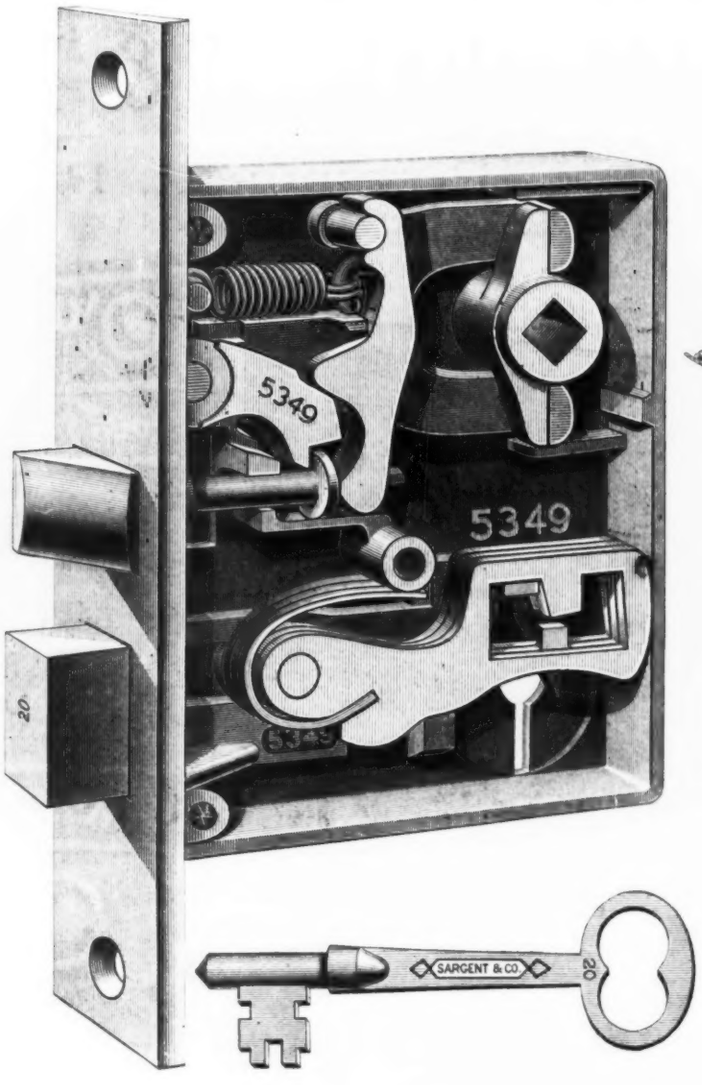
Front Door Sets.

Complete with Push Buttons.

Flat Steel Keys to Night Works.

3 TUMBLERS.

Write for Prices.



Easy on the Latch Bolt

Heavy on the Knob.

Patent Forged Solid Steel Key.

SARGENT'S

EASY SPRING

LOCKS.

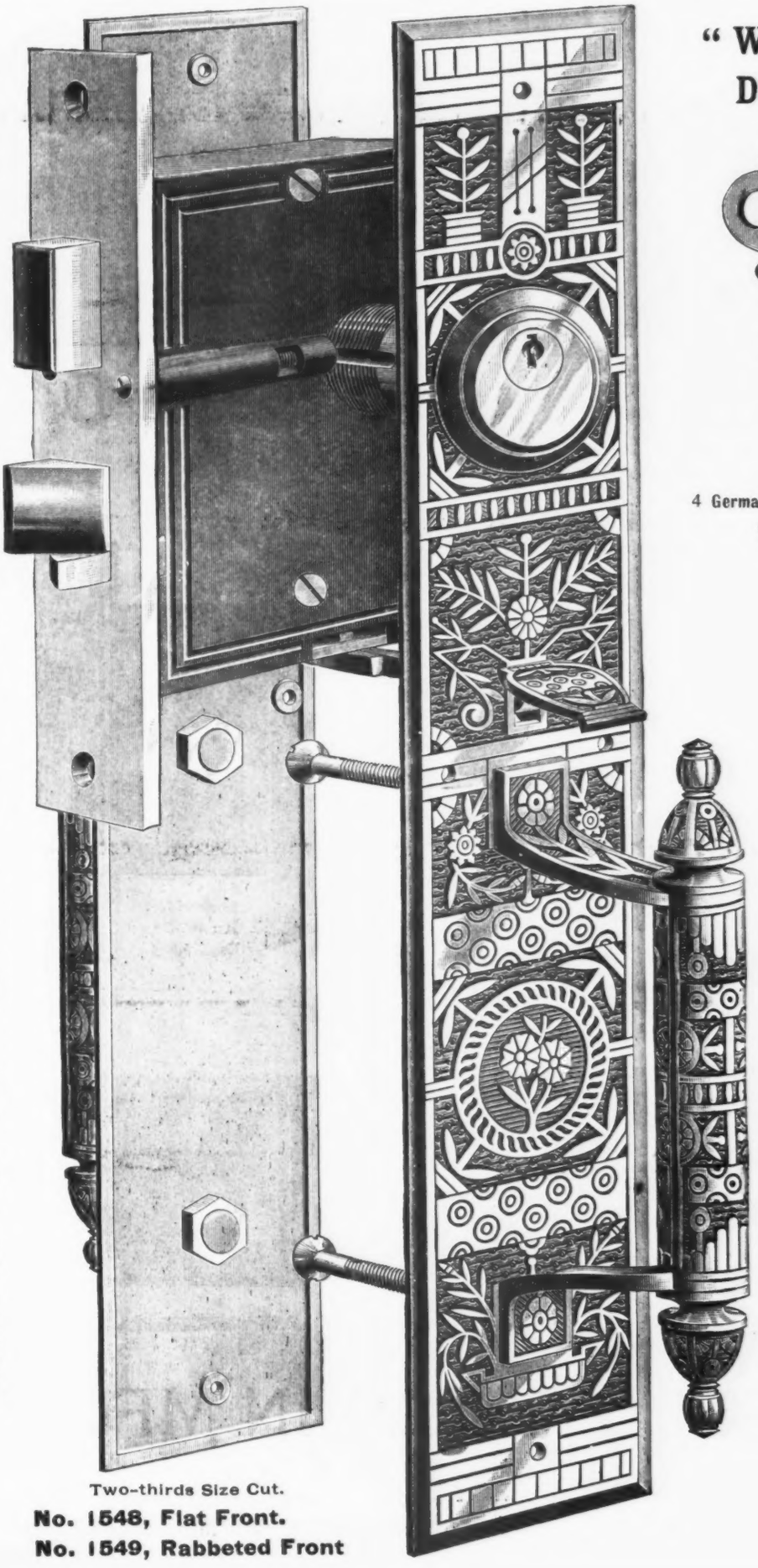
"VASSAR"

STORE DOOR HANDLES AND LOCK.

MANUFACTURED BY

READING HARDWARE COMPANY, READING, PA.

WAREHOUSES: NEW YORK, 81 Reade Street. PHILADELPHIA, 514 Commerce Street. CHICAGO, 73 Wabash Avenue.



Two-thirds Size Cut.

No. 1548, Flat Front.
No. 1549, Rabbeted Front

"Windsor" Design.

4 German Silver Keys with each Lock.

OBLIQUE BAR HANDLES.

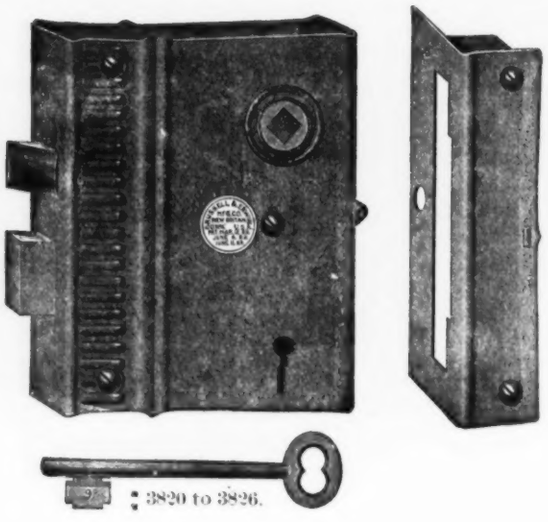
SIZE OF PLATES, 15 x 2¾ IN.

"VASSAR" CYLINDER LOCK, 5 x 3½ IN.

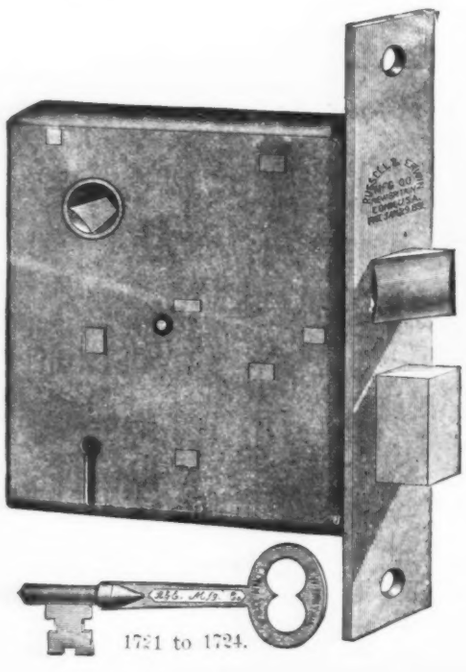
TEMPORA MUTANTUR ET NOS MUTAMUR IN ILLIS.

WROUGHT STEEL DOOR LOCKS.

3800 to 3806.



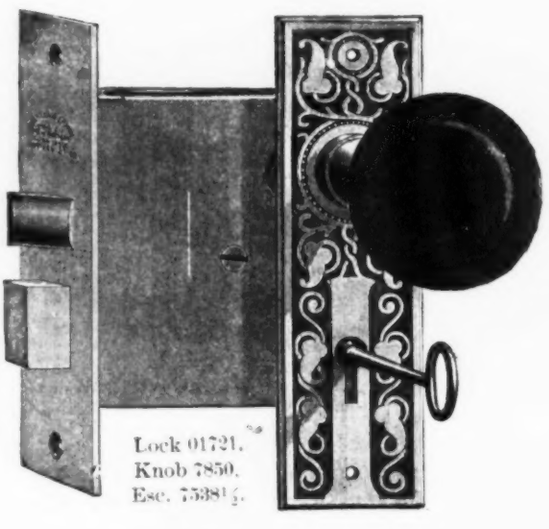
3820 to 3826.



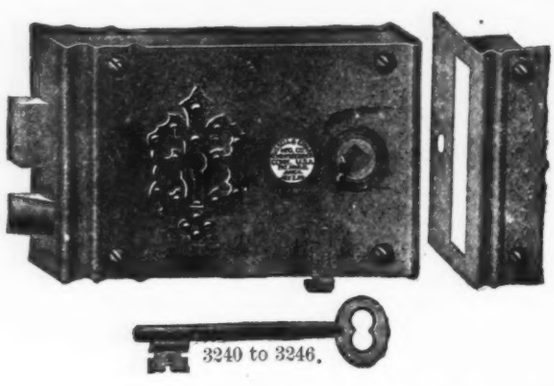
1721 to 1724.

THEY EXCEL IN

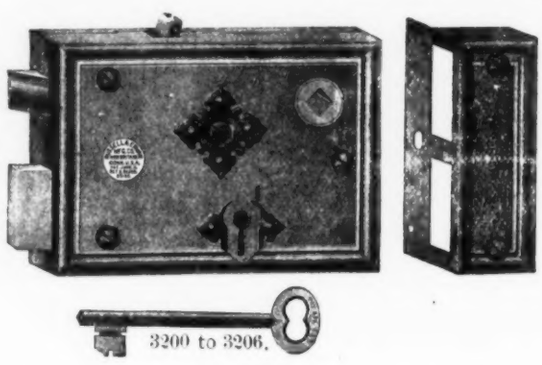
Lightness and Strength, in Beauty of Design and Novelty of Finish.



Lock 01721.
Knob 7850.
Esc. 7538½.



3240 to 3246.



3200 to 3206.

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STEEL HINGES AND BUTTS.

STANDARD GOODS.

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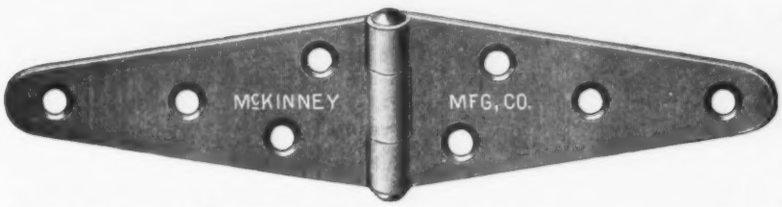

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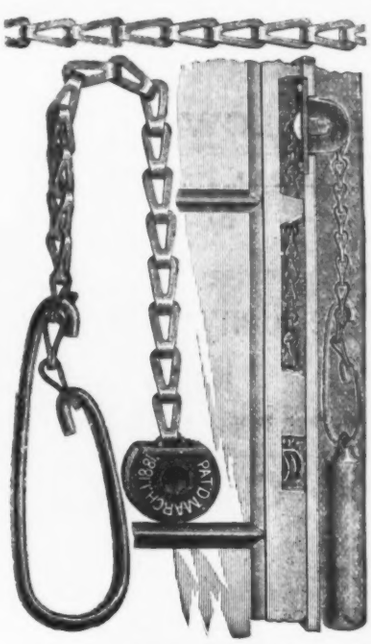

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This is one of the best selling locks in the market, and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

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is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."

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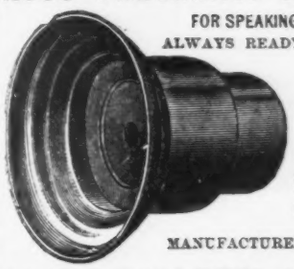

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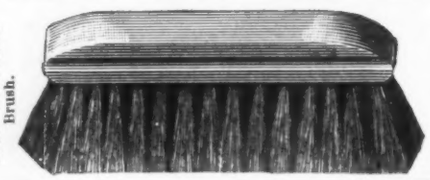

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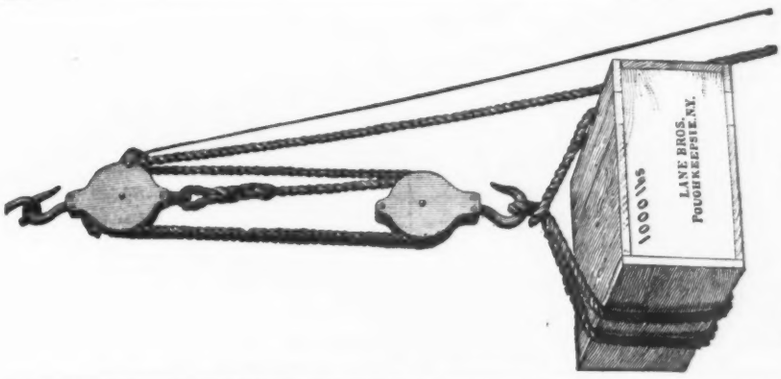

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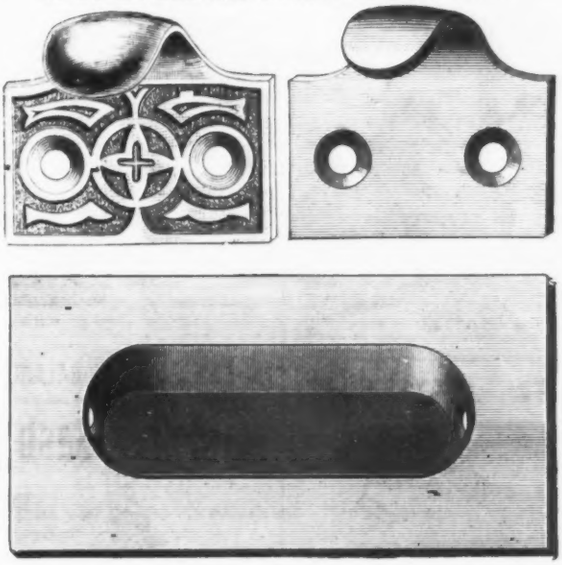

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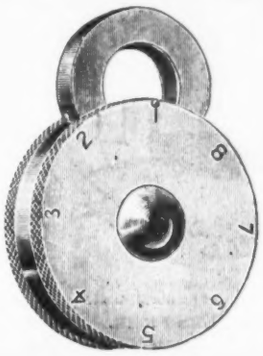

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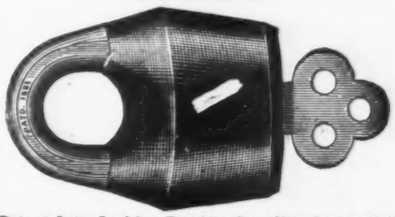

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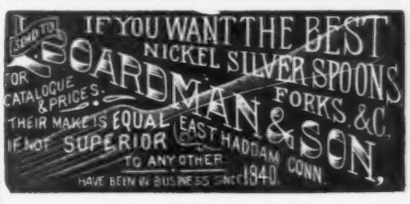

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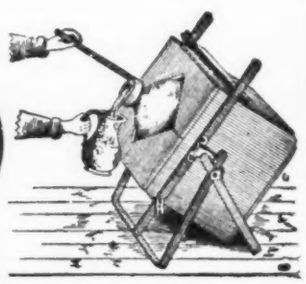

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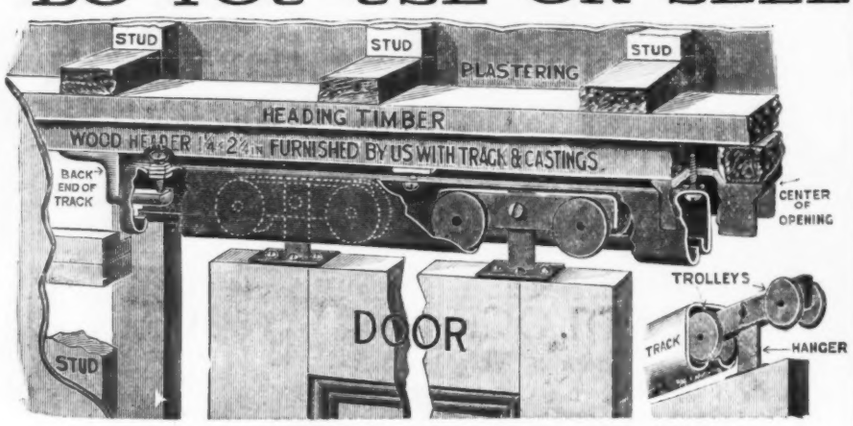

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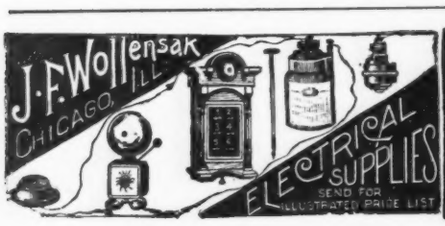

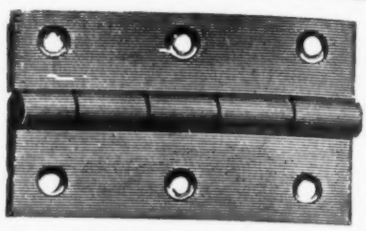

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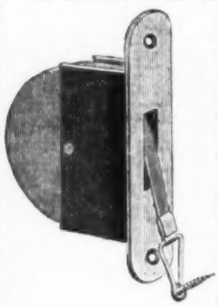

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Every Balance warranted.

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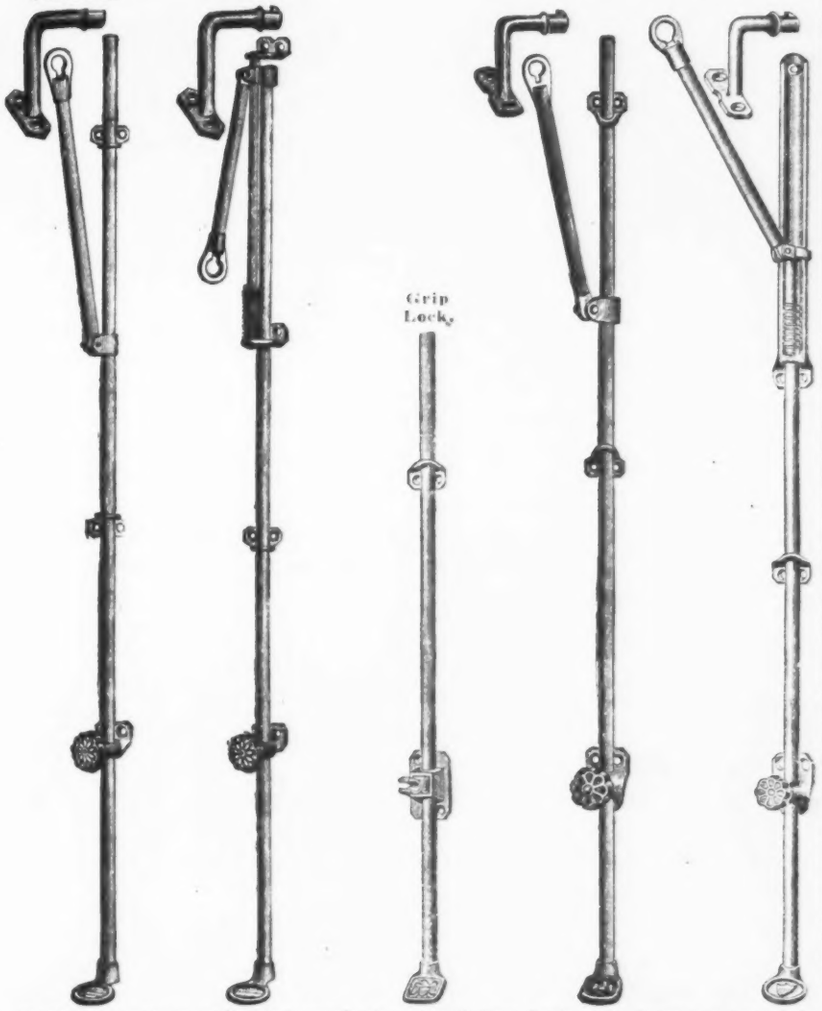

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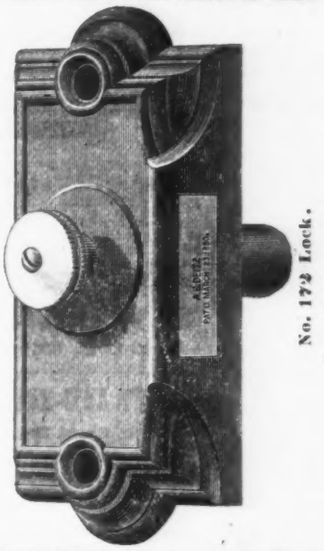

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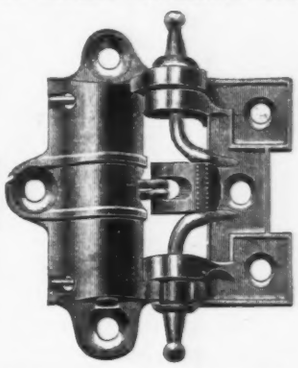
Holds the door strongest when closed.



Resistance gradually decreases in opening

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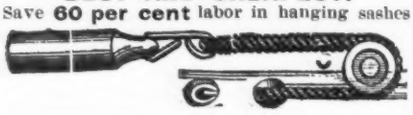

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Cut One-half Size.

Sample pair sent to any hardware or saddlery firm by addressing

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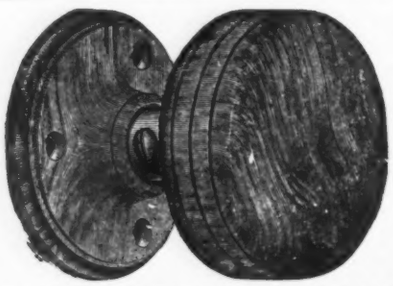

PATENT WOOD DOOR KNOBS

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CHECKING SPRING HINGES.

J. BARDSLEY,

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Illustrated Price-List on application

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Meeting-Rail Sash Lock

Has the greatest efficiency and a larger amount of the finest trade with first-class Hardware dealers than any other Sash Lock, showing the high appreciation of Architects, Builders and Dealers.

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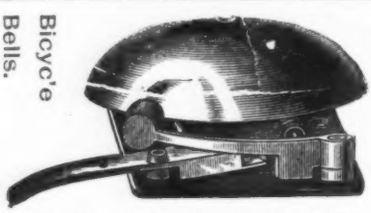

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Spring used in TRIUMPH SNAP

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As used for attaching Bit to Bridle or Halter. Has no equal, and the lowest in price.

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Our "Daisy" is the lowest in price and the best Wood Jack. Our "Victor" is the lowest in price and the best Iron Jack on the market.

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Capacity, 1200 lbs.

DANDY HAME STRAPS.

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Capacity, 1600 lbs.

Send for catalogue illustrating our specialties in Saddlery, Coach and General Hardware.

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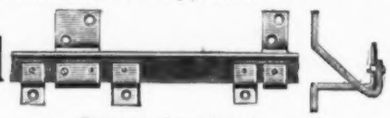
In our Steel Covered Hangers we have all the desirable features of the Best Hangers in the market, and with that we combine the cover for wheels SO NO ICE OR SNOW can reach the wheels, and making this cover as we do, we stiffen it so it is the strongest Hanger in the market, and we believe it is just perfect. Would be glad to have you try a small order and satisfy yourself.

Double-Braced  Steel Rail.

PATENTED JUNE 12, 1888.

This rail being double-braced and double-riveted is the strongest rail in the market. Being braced both ways it will not sag. The joint is made so it is perfectly solid. It comes complete and ready for use, requiring only screws and screw driver for any man or boy to put it up in short order. It can be used for any grooved wheel Hanger, and a heavy door will not make it spring or tremble. Guaranteed to hold a door weighing 2,000 pounds, and used in connection with our Anti-Friction Hanger will work perfectly on large small doors.

Cronk's Adjustable Stay Roller.

Made of wrought steel strap; cast block with slot adjusted by loosening bolt.

Cronk's Inside Adjustable Stay.

Is cheap, simple and durable, and much better than a cleat nailed on the floor for this avoids all friction and leaves no place for dirt to accumulate. $2.00 per doz. No inside door can be properly hung without this stay.

Pacific Coast Agents, CHAS. L. PIERCE & CO., San Francisco, Cal.

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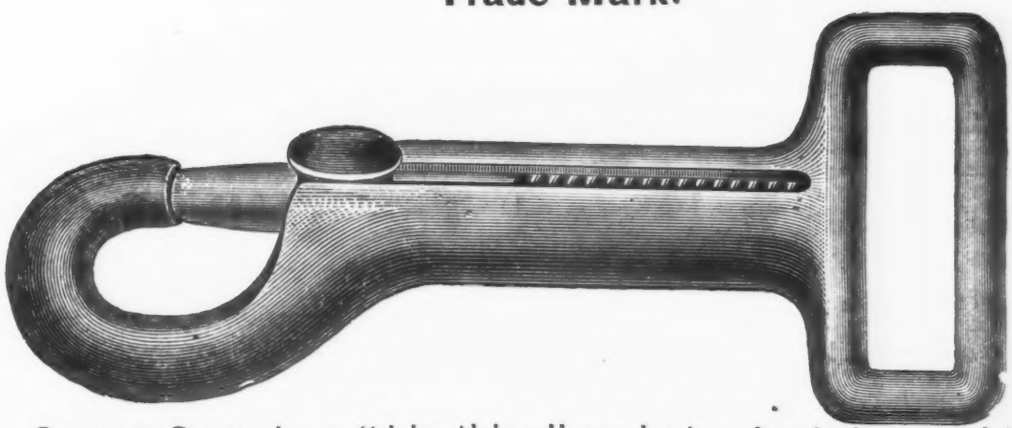
All Tags and **Labels** on **Covert Goods** bear the above **Trade-Mark.**



The Covert Snap is a "big thing" and standard the world over, for the reason that it is the best and cheapest Snap made and defies competition.

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SPECIAL DROP FORGINGS.

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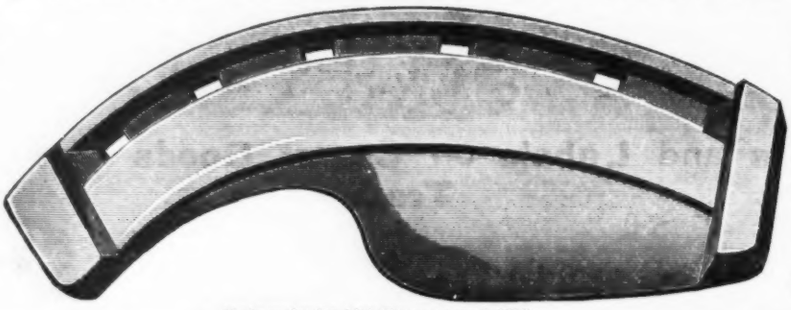

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It is Just Right.

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The Best and Cheapest in the World.

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Warranted to outwear any shoe made.

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HORSE SHOES.

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THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and **YOU** will say they excel all others.

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Of Best Material and Workmanship.

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All Sizes. All Patterns. All Warranted. Sold Everywhere.

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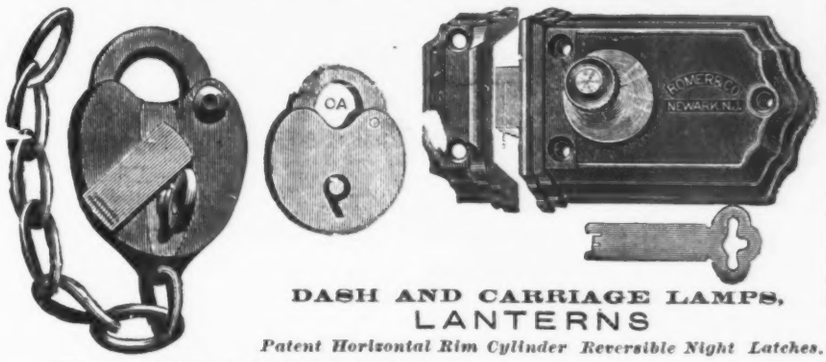

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TOTE BOXES.

Made of any gauge of sheet steel desired, suitable for handling nails, bolts, nuts, washers, ore, coal, quartz and other rough heavy substances. Can't be knocked to pieces. Thousands in use, proving durable and satisfactory. Write for prices.

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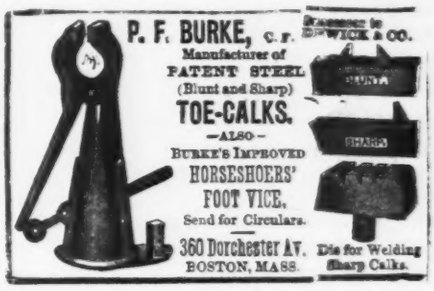

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Three Sizes, Nos. 1, 2 and 3.

Hammer's Adjustable Clamps. Mall. Iron Hand Lamps. M. I. Hanging Lamps

New Pattern Heavy Screw Clamps.
Strongest in the market.

For Sale by all the Principal Hardware Dealers.
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of superior quality, and Hardware Specialties in Malleable Iron, made to order.

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An appliance to be attached to a tackle block for holding the load at any desired height. Grips the rope but does not injure it. Applicable to any style of block and easily attached. The lightest and cheapest on the market and perfectly sure. If your hardware dealer does not keep it send to us and we will deliver it.

Blocks furnished equipped with grips if desired.

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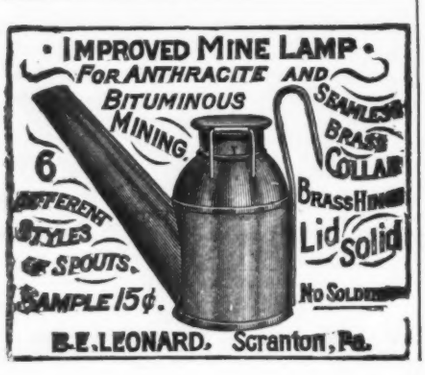

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TACKLE BLOCKS

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ARE BETTER IN EVERY WAY.

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Strongest, Lightest, and most Durable Blocks made.

Note the superior strength gained by the encircling outside strap, with bolts and steel pin passing through both plates and straps. Edges rounded to protect the rope.

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U. S. Standard.			Points Hardened.		
No.	Inch.	Price.	No.	Inch.	Price.
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3	¾	50	9	2½	1 40
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Small set of 8, $5.50. Full set of 12, $12.

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The most Effective, Reliable and Perfect Wrench in the market.

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BUFFALO SCALE CO., Buffalo, N. Y.
SCALES OF ALL KINDS.

Bemis & Call Hardware & Tool Co.

COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

This Wrench can be Furnished with Long Nut or Sleeve.

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The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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TRIMO PIPE WRENCH,

Forged Steel.

All parts interchangeable.

Grips firmly without loss of motion, in close quarters. Releases its hold readily. Does not crush the pipe.

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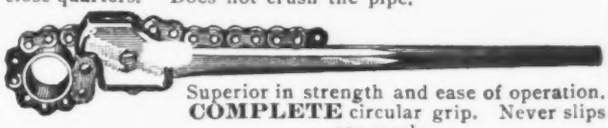

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Manufacturers of

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Furnished in Two Sizes, Either Size with Bent or Straight Holder.

We furnish Cutters for U. S. S. Threads to fit these tools.

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For Machine Tools, Locomotives, Pumps, Steam or Gas Engines and General Shop Use.

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One Hundred Standard Sizes always in stock.

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Manifest advantages over all other vehicle wrenches — Best air furnace malleable iron, smoothly cast, neatly japanned.

Cheap in price. Sample by mail 25c.

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(Patent applied for.)

The most handsome and durable Sprinkler now offered to the trade. Stands about 15 inches high. Top Swivel and Arms made entirely of brass. Stand Pipe ⅝ inch. Bottom Runners and Plate made of iron. Painted, Japanned and Bronzed. Furnished complete with coupling for ¾ inch hose. Packed one in a box.

FOR SALE BY ALL JOBBERS.

MANUFACTURED BY

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"RIVAL" PATENT Lawn Sprinkler.

Cheapest and Best in Use.

Agents Wanted. Liberal discount to buyers

The Spray from it covers upward of 1000 *sq. feet of lawn.* It is the only patent adjustable Sprinkler which is adaptable to any water pressure. Being made of brass, and having no revolving parts to wear out, or small opening to clog up, it can be operated with sandy or muddy water as well as clear, and will last for years. To operate, screw Sprinkler on end of hose, stick the rod into the ground in a vertical position, adjust the acorn to suit pressure and spray wanted and it is ready for use. It may be so regulated as to throw a spray *as coarse as rain* or *as fine as mist*, and will make one of the most beautiful fountains imaginable. It is unequaled in merit, requires no attention and is sold at a less price than any sprinkler in the market. Remember, the RIVAL is the only Sprinkler made by which the coarseness of the spray and the area to be wet can be regulated. They are packed 1 doz. in a box, and finished either plain or nickel-plated.

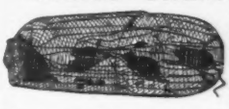
FULL SIZE.

¾ inch Regular Hydrant Thread, (or Pipe Thread to order) per doz. $7.50
1 Inch, Reg. Gas Pipe Thread, " 12.00
Sample Sprinkler sent prepaid on receipt of 60 cents

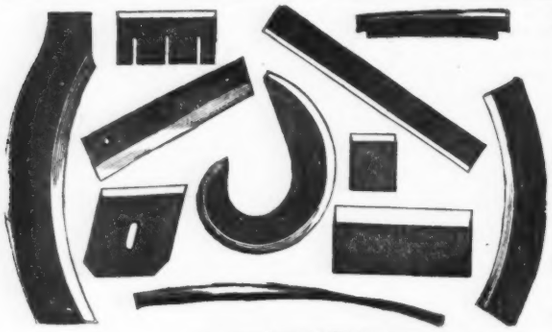
The JOHN H. McGOWAN CO.

Cincinnati, Ohio.

"MARTY" FRENCH RAT TRAP



catches from *ten to thirty* rats in one night; one man reports *six hundred* in eighteen days; another *eighty* in twenty-four hours. Beware of imitations, get the genuine "*Marty*" trap, see that my name is on each trap before buying. A great seller and pays a good profit. Write for prices to A. W. PAINE, 20 Dock Square Boston, Mass.



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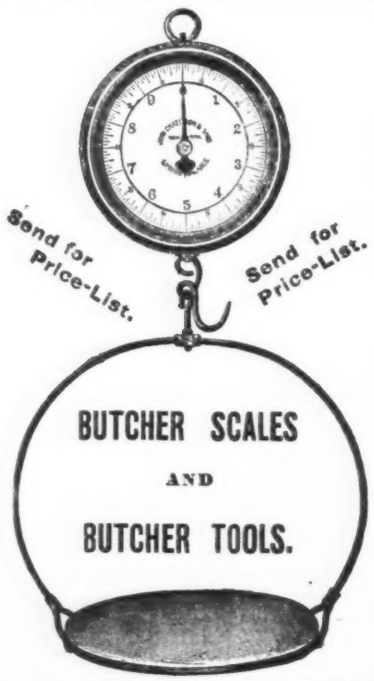
Manufacturers of **MACHINE KNIVES.**

Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description

End view of Plated Stock for Dies, Lawn Mower Knives, Blades &c., showing how the Steel is laid.



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THE BIEDER ADJUSTABLE
Grass Catcher

PATENTED MARCH 1, 1892.

Is the only Adjustable Grass Catcher on the market and accommodates itself to any Mower.

ATTRACTIVE, DURABLE, CHEAP.
It is Light (Weight One Pound.)
DONT BE MISLED BY CHEAP IMITATIONS.

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THE IMPROVED ACME STEEL WRENCH

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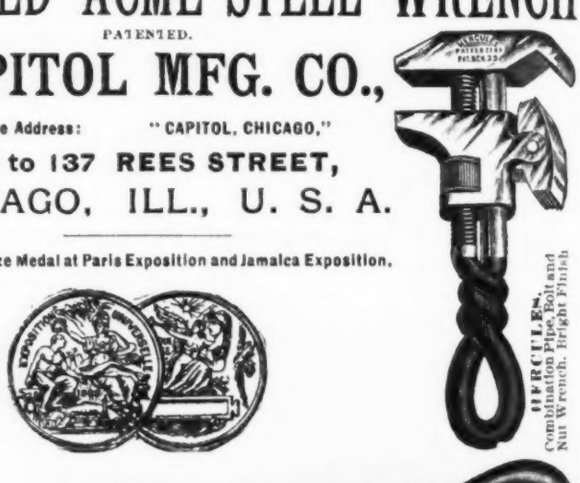
Awarded Prize Medal at Paris Exposition and Jamaica Exposition.



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This Screw Driver is made from one piece of special cast steel, in all sizes, from 1½ in. to 12 in. The blade is well polished, carefully tempered, and every screw driver is subjected to a severe test and warranted. Handles Japanned with the best quality baking Japan.

The Strongest and Most Durable Wrench and Screw Driver Made.

Write for Prices and Full Information.

L. COES'

Genuine Improved

KNIFE HANDLE

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Screw Wrenches

MANUFACTURED BY

COES WRENCH CO.,

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Established in 1839.

Patented July 6, 1880.

Registered March 31, 1874.

Patented July 8, 1884.

Sectional View illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position

Straight Bar, Extra Long Nut for Screw in Jaw.

The BEST MADE and STRONGEST WRENCH in the MARKET.

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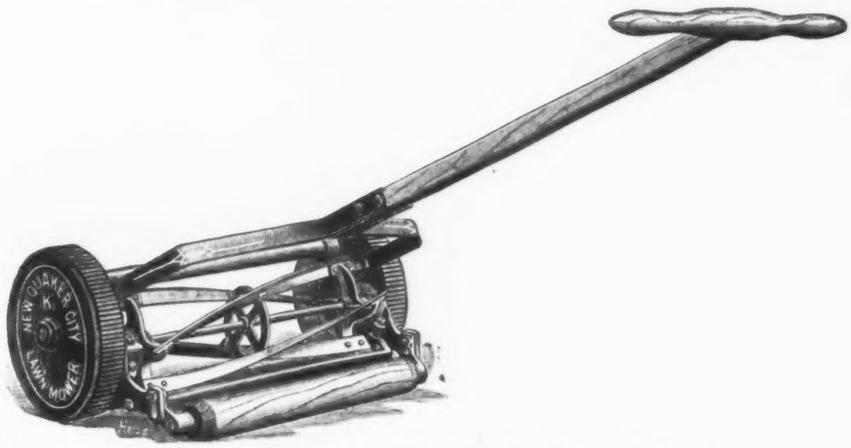
THE NEW QUAKER CITY LAWN MOWER.

REAR CUT, INCASED GEAR.

Has Patent Cylinder Knives, and Eno's Patent Yielding Bed Knife, Making it the Most Durable Mower of this Pattern in the Market.



Made in 5 Sizes, 10, 12, 14, 16, 18 Inches.

Also Manufacturers of PENNSYLVANIA, CONTINENTAL, GREAT AMERICAN LAWN MOWERS, HORSE AND PONY MOWERS and GRASS CATCHERS.

☞ There is no question for doubt that the manufacturers of these Mowers manufacture double the quantity of Lawn Mowers of any other manufacturer in the known world, and have not made their reputation from price alone, but from the Quality of mowers turned out.

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HENLEY'S LAWN MOWERS

First-class high grade machines, made of the best materials. Neat, symmetrical, strong, durable and unexcelled in construction and ease of operation. Does perfect work. For prices address

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CACTUS LAWN SPRINKLER.

INDESTRUCTIBLE, BEAUTIFUL, CHEAP.

NO REVOLVING PARTS.

This Sprinkler has no revolving parts to leak or wear out. The openings throughout are equal in area to ½ inch, and therefore will pass freely all sand or gritty substance in the water without clogging. It can be moved about the lawn while in operation without turning off the water, and with a low pressure will distribute a perfectly even and beautiful spray 30 feet in diameter; and in addition a light center fountain spray 15 to 18 feet in height. It is recommended as the most durable, beautiful and cheapest Sprinkler in the market and is guaranteed to give entire satisfaction to any purchaser. For sale by all dealers.

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IMPROVED

Lawn Mower's Partner,

PAT. MARCH 17, 1891.

The only Practical Grass Carrier in the market. Adjustable to any and all sized mowers. We made big improvements and great reductions in Price.

Send for Circular and Price-List.

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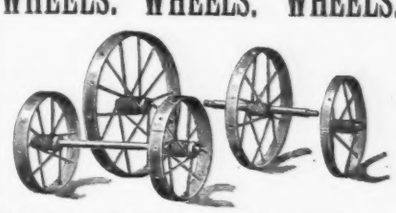

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Mention *The Iron Age*. **New London, Ohio.**

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"NEW MODEL."

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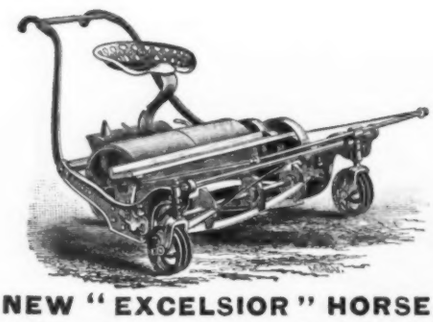
THE "O.K."

We are the oldest and most extensive manufacturers of LAWN MOWERS in America.

THE "RIVAL."



NEW "EXCELSIOR" HORSE.

"EXCELSIOR" ROLLER.

Every Lawn Mower we manufacture is FULLY WARRANTED.

IT WILL PAY YOU TO SEND TO US FOR DESCRIPTIVE CIRCULARS AND TRADE DISCOUNTS, BEFORE PLACING YOUR ORDERS FOR LAWN MOWERS FOR THE COMING SEASON.

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MANUFACTURERS OF

"The Lawn Razor."
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"Mohawk" Solid Wiper " "
"Mohawk" Open Wiper " "
The "Lawn Atomizer."
"Revolving Turf Edger."
Hammock Pattern Grass Collector.

Send for Price-List and Discounts.

"Coldwell's Standard."
"Coldwell's Model."
"Coldwell's High Wheel."
"Coldwell's Improved Horse Mower."

These are unanimously pronounced to be the

BEST MOWERS

ever offered to the public.

Coldwell Lawn Mower Co.,
NEWBURGH, N. Y.

POWERS GRASS CATCHER

WILL FIT THE PHILADELPHIA, NEWBURGH, SPRINGFIELD, SYRACUSE AND RICHMOND

LAWN MOWERS.

AT $1.50 RETAIL. GATHERS ALL THE GRASS, LEAVING THE LAWN CLEAN AND SMOOTH. WHICH EVER MOWER YOU SELL, YOUR CUSTOMER WILL WANT ONE OF THEM IF YOU SHOW IT. TRY A SAMPLE.

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LAWN MOWER.

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Unexcelled in design, quality of material and workmanship, durability, ease of operation and cleanness of cut.

High Wheel, High Speed, High Grade. Sold on its merits and guaranteed. Circulars and prices sent on application. Liberal discount to the trade.

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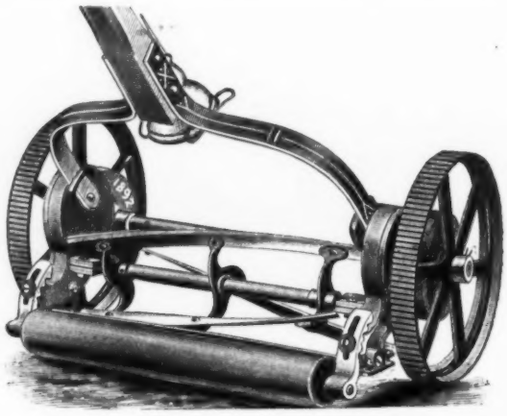
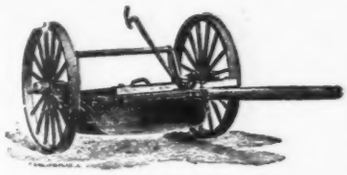


Wheel-Barrows



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FOR EVERY PURPOSE. ALSO
DRAG AND WHEEL SCRAPERS.
SEND FOR DESCRIPTIVE
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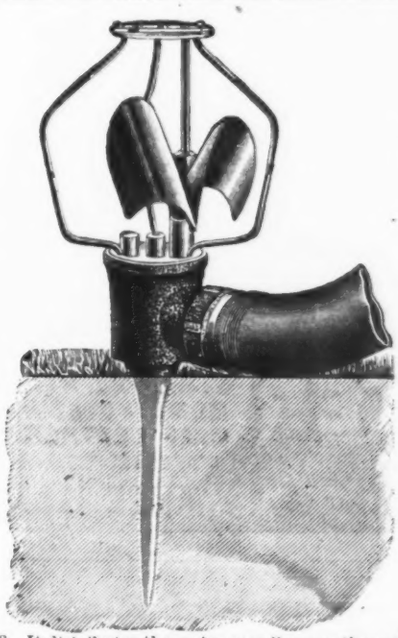

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BONNETTE'S ARC LAWN SPRINKLER.

Patented Oct. 20, 1891.

This Sprinkler was invented by a **DRY GOODS MAN** in Bay City, Mich. He noticed that when his neighbors set out their sprinklers, they wet all over the sidewalks as well as the lawns.

On going back and forth to the store he was often forced into the middle of the street to avoid a shower from the sprinkler. Ladies often ruined their dresses from this source.

It set him to thinking. Sprinklers should not be a nuisance. Could one be made that would sprinkle, if desired, in a half circle? He thought so. He commenced to work and experiment.

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4. **This is the only machine ever invented that will sprinkle water in a half-circle,** thus preventing the wetting of walks while thoroughlysprinkling the lawn.
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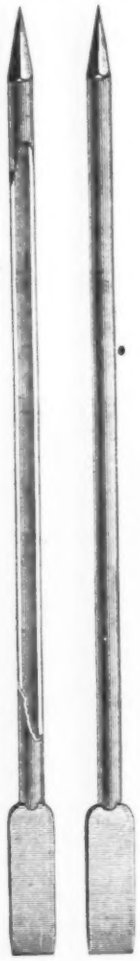

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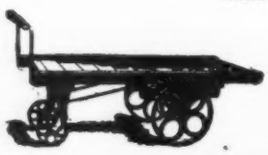

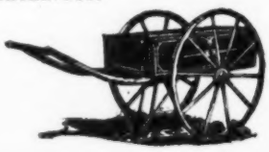

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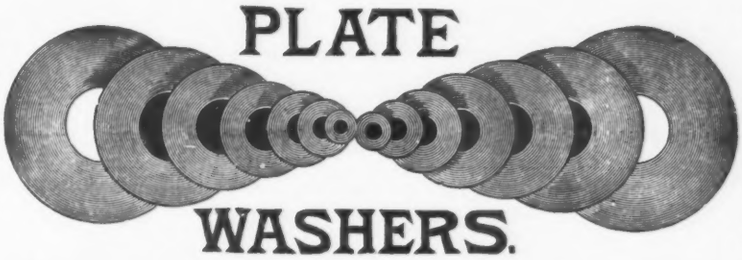

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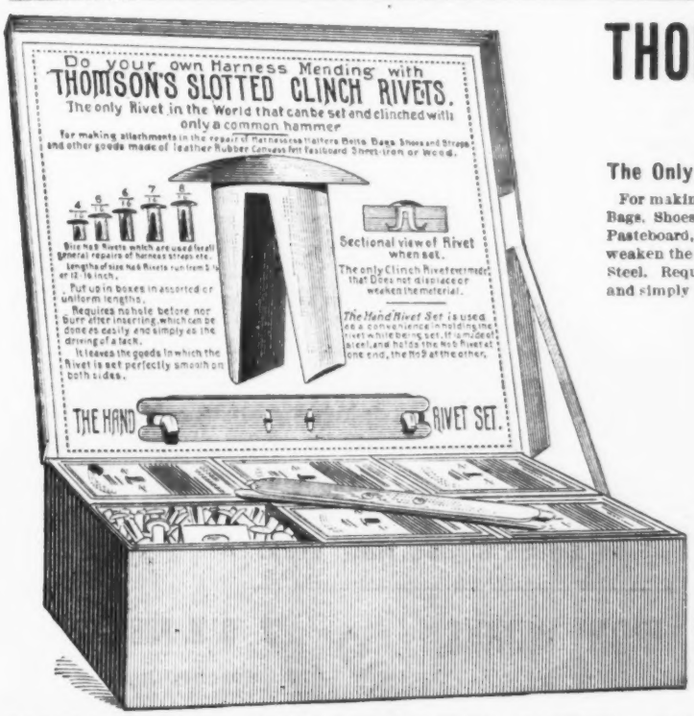

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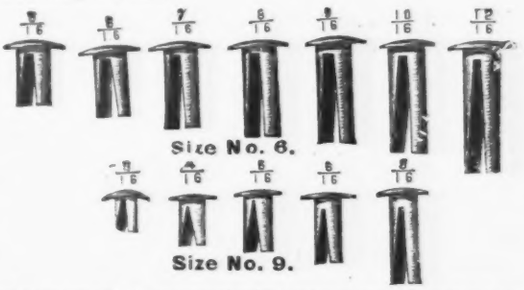

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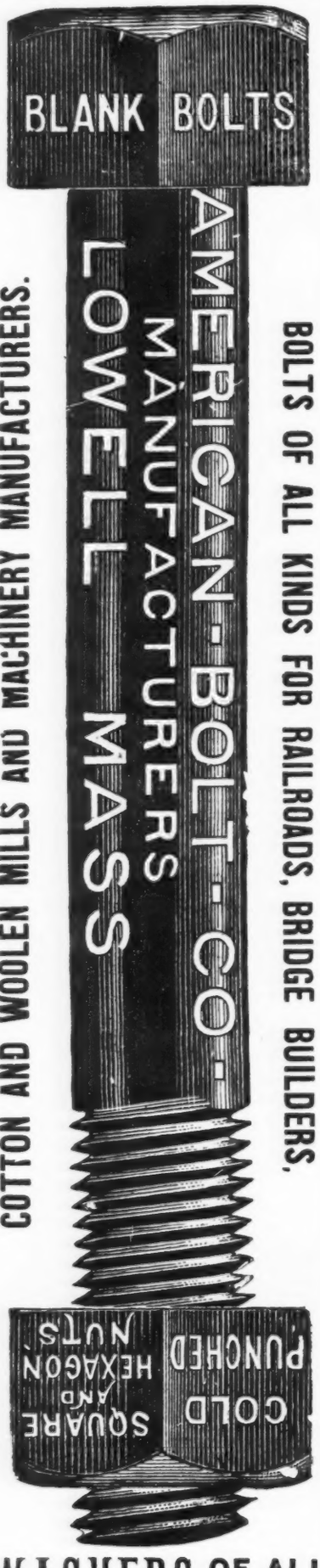

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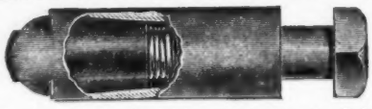

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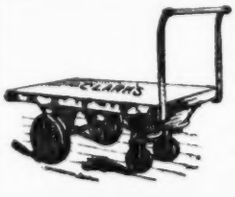

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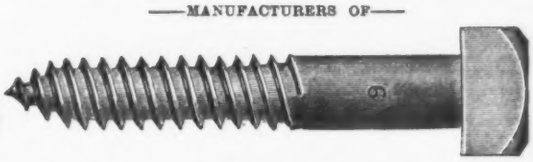

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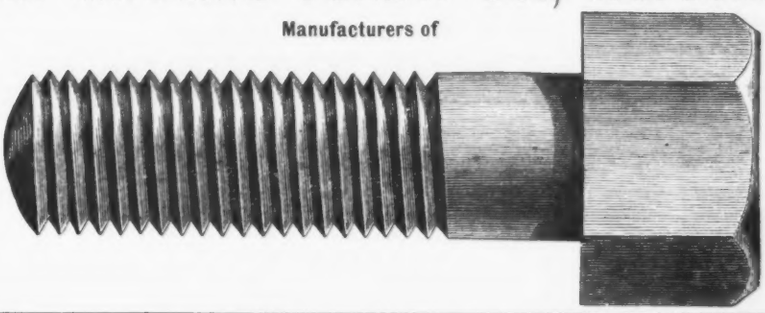

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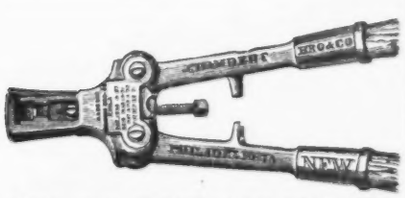

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Wister, Francis, Philadelphia

Coffee and Spice Mills.
Arcade Mfg. Co., E. Freeport, Ill
Chillicothe Mfg. Co., Chillicothe, O
Lane Bros., Poughkeepsie, N. Y.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited) 4 and 6 Warren, N. Y.

Conveyors.
Link Belt Engineering Co., Phila., Pa.

Copper.
Ames Sword Co., Chicopee, Mass.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Edes, Edw. L., Plymouth, Mass.
Hendricks Bros., 49 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.
Wister, Francis, Philadelphia, Pa.

Cordage.
Elizabethport Cordage Co., 46 South,

Corn Huskers.
Perkins, H. H. Mfg. Co. Kewanee, Ill.

Corrugated Furnaces.
Continental Iron Works, Brooklyn N. Y.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.

Counting Machines.
Osborn, G. Edw. & Co., New Haven, Ct.

Coupling.
Almond, T. R., Brooklyn, N. Y.

Coverings, Boiler and Pipe.
Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Allentown Rolling Mills, Allentown, Pa
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Kohler, F. E. & Co., Canton, O.
Noyes, B. B. & Co., Greenfield, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co., Chicago, Ill.
Curley, J. & Bro., 6 Warren St., N. Y.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N.Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain, Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.
Union Hardware Co., Torrington Ct.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford Conn.
Goddard, Asa, Worcester, Mass.
Halsey, Jas. T., Philadelphia Pa.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N.Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
Wheeler Frank, Meriden, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Amer. Axe & Tool Co., 280 B'way, N.Y
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa
Standard Axe & Tool Co., Ridgway, Pa.
White, L. & I. J., Buffalo, N. Y.

Egg Poachers.
Shepard, Sidney & Co., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 558 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevator Gates.
Webster & Perks Tool Co., Springfield, O.

Elevators. *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield Mass
Variety Mch. Co., Warsaw, N. Y.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R. I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co. Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa
Tallman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

See Alphabetical Index, Page 142.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works, Harrisburg, Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. Norwalk.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn
Church, Isaac, Toledo, O.

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Fiber Ware
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Pans.
wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Co., Cincinnati, O.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collau, Victor, Detroit, Mich.
S. Obermayer Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp, Clarence M., Baltimore, Md

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. S. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Mass.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Kames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. W. & Co., Gloucester, Mass.
Improved Process Glue Co., Gloucester Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co., Chicago, Ill.
Glennon & Krause, Chicago Ill
Norton Emery Wheel Co., Worcester, Mass.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gun Implements.
Union Hdw. Co., Torrington, Conn

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hand Screws.
Grand Rapids Hand Screw Co., Grand Rapids, Mich

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Coburn Trolley Track Mfg Co., Holyoke, Mass
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brady Mfg. Co., Brooklyn, N. Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Cleveland Fdy. Co., Cleveland, O.
Copeland Hdw. Mfg. Co., Worcester, Mass.
Cronk Hanger Co., Elmira, N. Y.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co., Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Welland, Chas., 113 Chambers St., N. Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston. Mass.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.
Oakes & Irwin, Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co., Sidney, O

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. E., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St. N. Y.
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Peerless Freezer Co., Cinn., O.
Shepard Hdw. Co., Buffalo, N. Y.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York
Sherwood Mfg. Co., Buffalo, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. R. & Co., Philadelphia.
Corning, Edw. & Co., 39 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia,
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wilhelm & Richards, Harrisburg, Pa.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickards, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, J. F., 457 Water, St., N. Y.
Leonard, J., 416 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdry. Equipment Co., Detroit, Mich.

Lanterns.
Dietz, R. E. & Co., 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.
N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Bonnette Arc Sprinkler Co., Bay City, Mich.
Ettre & Henger Mfg. Co., St. Louis Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St. Louis, Mo.

Lead Pipe Cutters.
Barrett, C. E., Brockton, Mass.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath., Mass.

Locks & Knobs, *Manufacturers of.*
Brittan, Graham & Mathes, Pittsburgh Pa
Canton Combination Lock Co., Canton, Ohio.
Clafien Mfg. Co., Cleveland, O.
Deits, A. E., 97 Chambers, N. Y.
Norwich Lock Mfg. Co., Roanoke, Va.
Reading Hdw. Co., Reading, Pa.
Romer & Co., Newark, N. J.
Russell & Erwin Mfg. Co., N. Y. City.
Sargent & Co., 37 Chambers St., N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bertsch & Co., Cambridge City, Ind.
Bickford, H., Lockport, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co., Laight & Canal Sts.
Gould & Eberhardt, Newark, N. J.
Harrington, E. son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct
Henley Mch. Tool Works, Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
MacKinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co., Waterbury Conn.
National Machinery Co., Tiffin, Ohio
Newark Mch. Tool Works, Newark, N. J.
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Ohio Machine Tool Wks, Cincinnati, O.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Webster & Perks Tool Co., Springfield, O
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machine Tools.—*See Machinery.*

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Branford, Conn.
C. M. & St. P. R. R.
Mordant F. S. Co., Chicago.
Norfolk & Western R. R.
Ogden, Utah.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bethlehem, Pa.

Meat Cutters.
Enterprise Mfg. Co., Philadelphia, Pa.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Machinery.
Gates Iron Wks., Chicago, Ill.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Belknap Motor Co., Portland, Me.
Thomson-Houston Motor Co., Boston. Mass

Muzzles.
Cincinnati Mfg. Co., Cincinnati,

Nail Pullers.
Peckham, F. I., & Co., Newark, N. J.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Hanson & Van Winkle Co., Newark N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nutmeg Grater.
Edgar Mfg. Co., Reading, Mass.

Nut Machines.
Dunham Nut Mch. Co., Unionville Ct.

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oil Cups and Lubricators.
Sherwood Mfg. Co., Buffalo, N. Y.

Oilers.
Hammer & Co., Branford, Conn
Williams, H. A. Mfg. Co., Boston, Mass

(See Alphabetical Index, Page 142.)

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston. Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene, Tweed & Co., 83 Chambers St., N. Y. Belting & Packing Co. Ltd , N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Norwich Lock Mfg. Co., Norwich, Ct.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N. J.
U. S. Graphite Co., Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Bell, C. T., Washington, D. C
Dudley, W. U. & Co. Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Pencil Sharpeners.
Gcodel Co., Antrim, N. H.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord. Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Farclay, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N. J.

Post Hole Diggers.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Beiden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.
Wheeler, Frank, Meriden, Conn

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pruning Shears.
Henry, Jno. T. & Son, Hamden, Conn.

Pulley Fixings.
Rolev, J. W. & Co., Cincinnati, O.

Pulleys.
Reeves Pulley Co., Columbus, O.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Wais & Roos, Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Radiators.
Brcmell, Schmidt & Co., Ltd., York, Pa

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Foston, Mass
Ripley Mfg. Co., Unionville, Conn.
Waddel, Jno. Mfg. Co., Greenfield, O.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Curley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 91 Chambers, N. Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Welland, Chas., 143 Chambers St., N. Y.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.
Gloekler, B., Pittsburgh, Pa.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Gates Iron Works Chicago, Ill.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning Fdry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Johns, H. W Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport,
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N. Y.
National Saw Co., 96 Reade St., N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co, Fitchburg, Mass.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N. Y.

Saw Vises.
Seneca Falls Mfg. Co., Seneca Falls,

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N. Y.

Screens, Door and Window.
Phillips, A. J. & Co., Fenton, Mich.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago Ill.
Gay & Parsons, Augusta, Me.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—Manufacturers of.
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St, N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Union Hardware Co., Torrington, Conn
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henley, M. C, Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Skylights.
Priority Horticultural & Skylight Wks., 145 Liberty St., N. Y.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows, Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N. Y.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co, Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co. Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth, Mass.
Tichener, E. H. & Co., Binghamton N. Y.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutsman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia,
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Bushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co, Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa.

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stove Polish.
Raven Stove Polish Co., Chicago, Ill.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N. Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.

Tack Hammers.
Richardson, J. C. & Co., Ridgway, Pa.

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros. Testing Mch. Co., Phila.

Testing Laboratories.
Riehle Bros. Testing Mch. Co., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
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Lansing Wheelbarrow Co. Lansing Mich.

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Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg, Pa
Randolph & Clowes, Waterbury, Conn.

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Shelby Steel Tube Co., Shelby, O.

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Merrill Bros., Brooklyn, E. D.

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Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

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Tower & Lyon, 96 Chambers St., N. Y.

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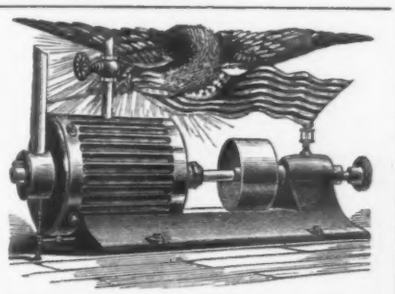

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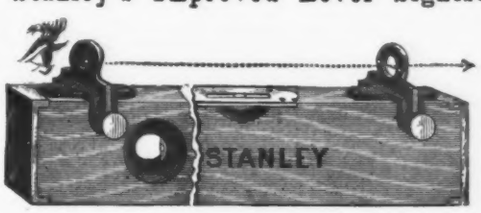

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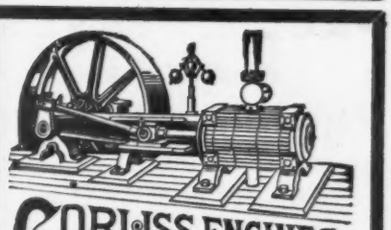

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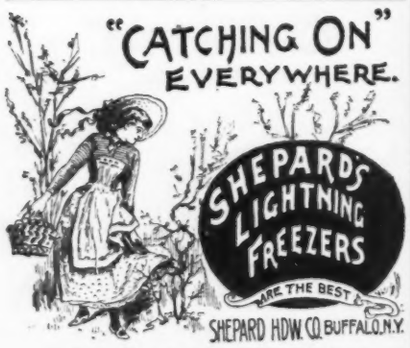

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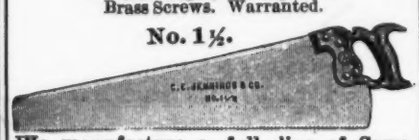
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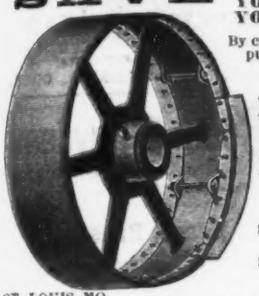

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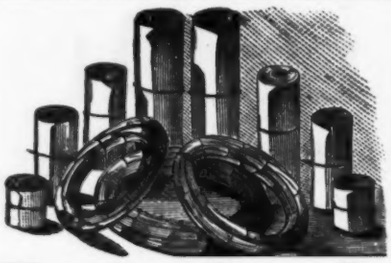
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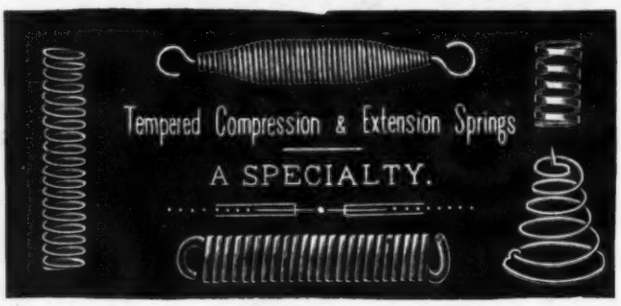

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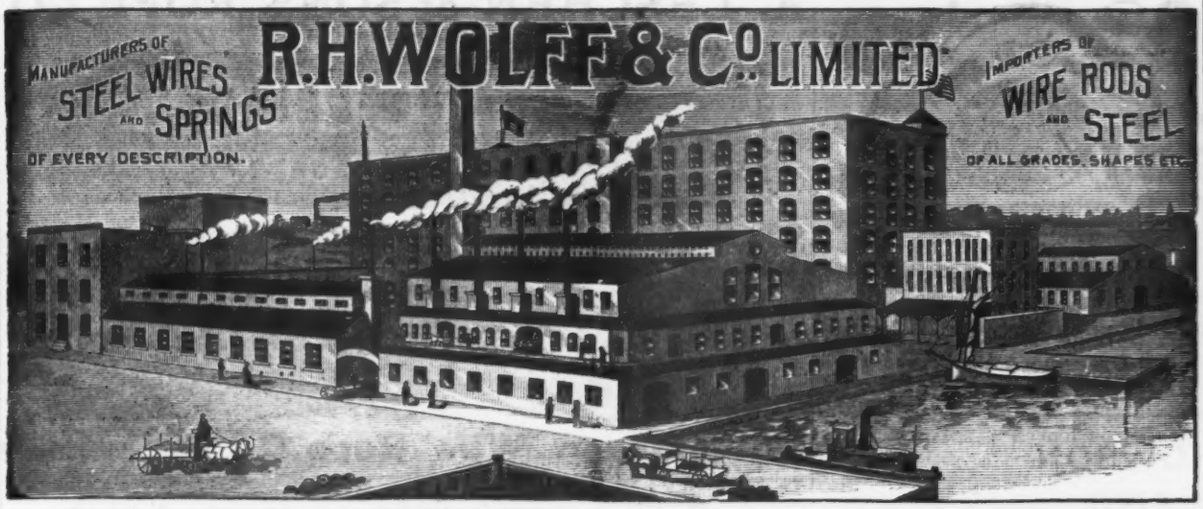

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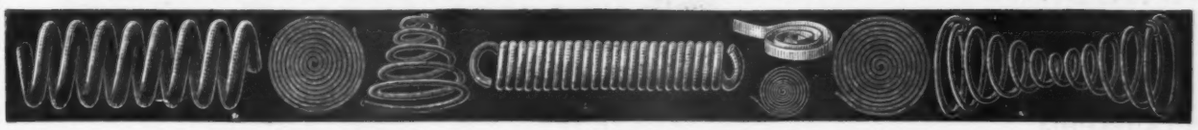

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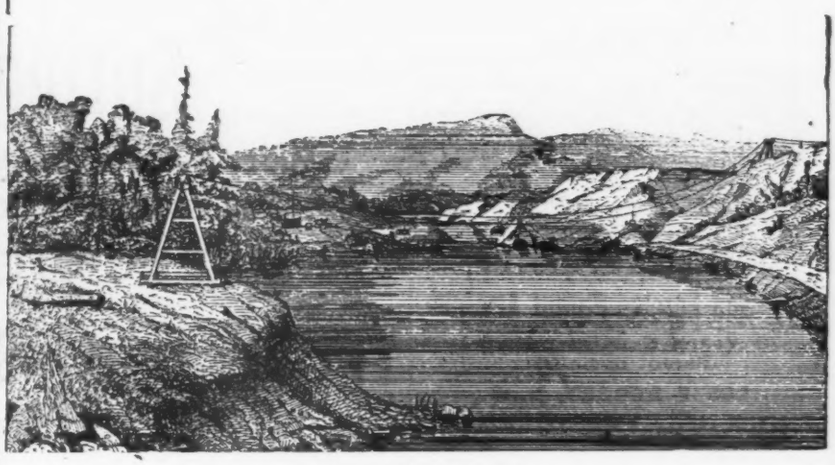

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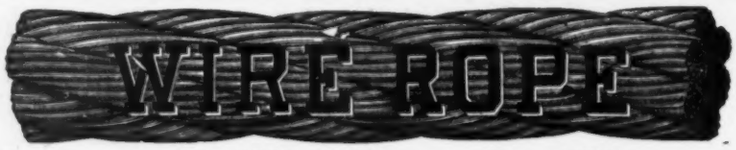

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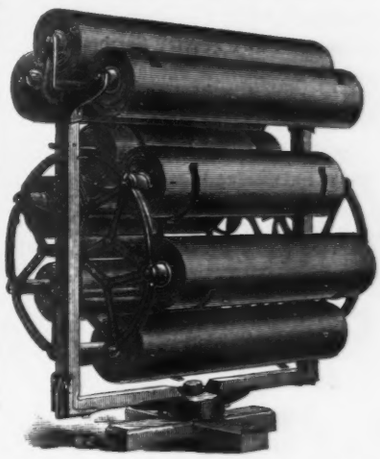

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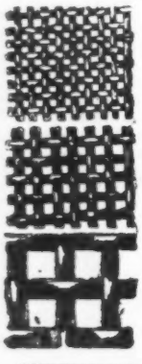

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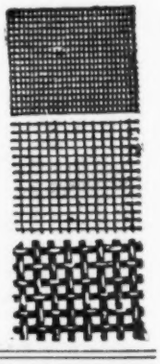

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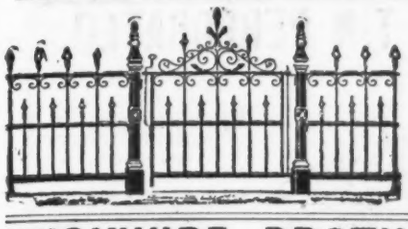

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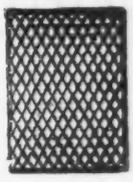

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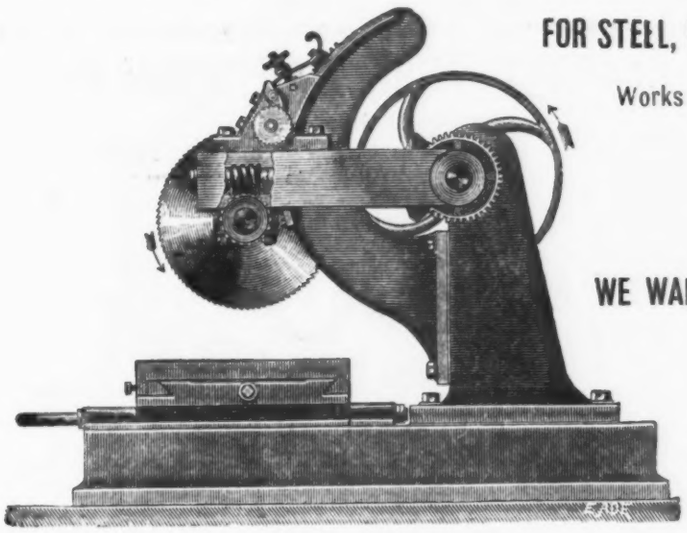

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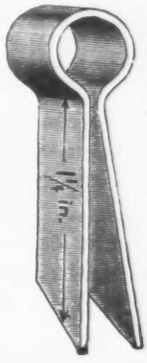

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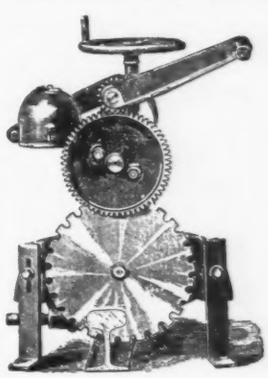

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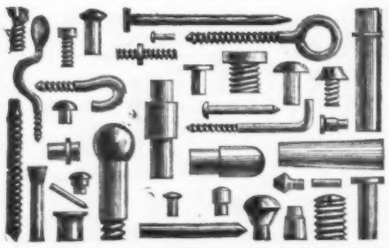

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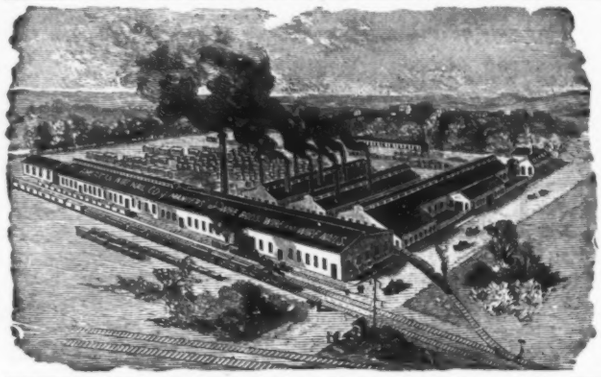

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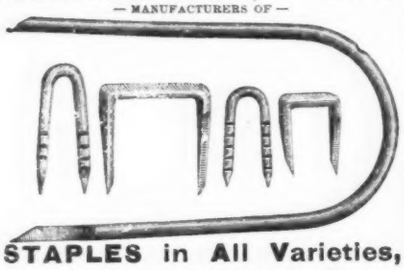

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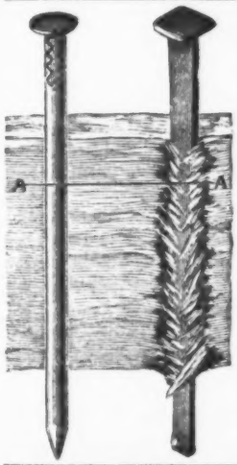

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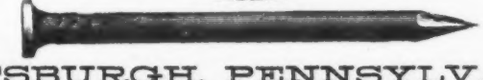

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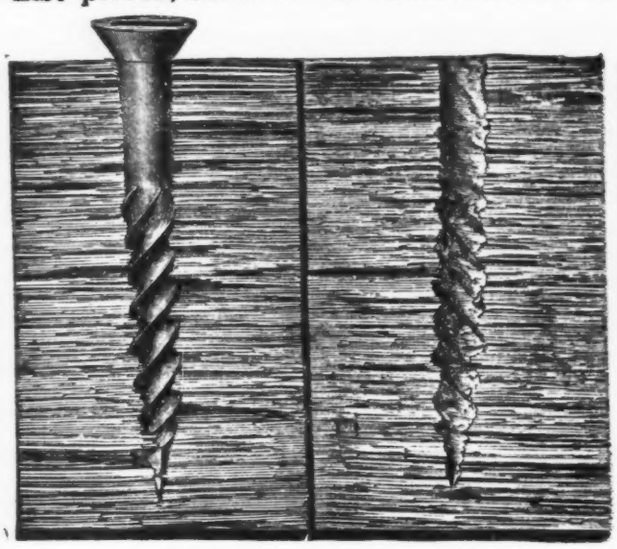

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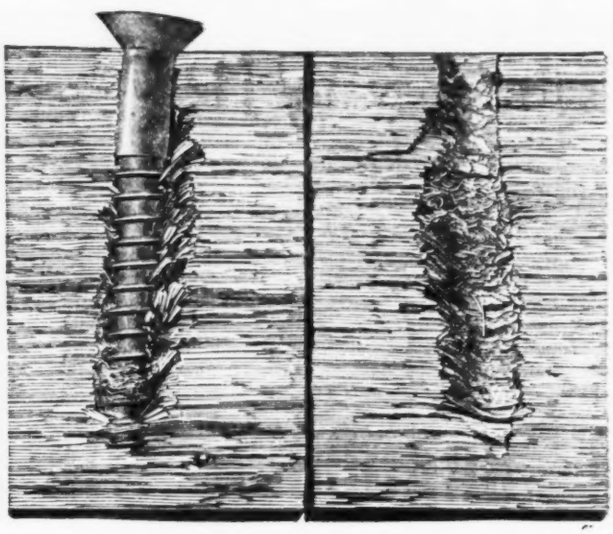

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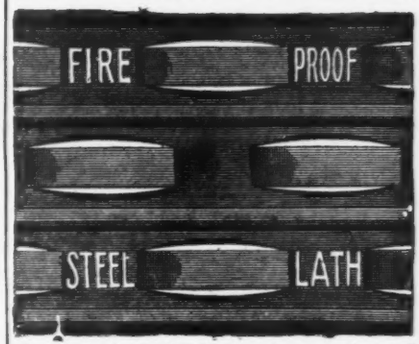

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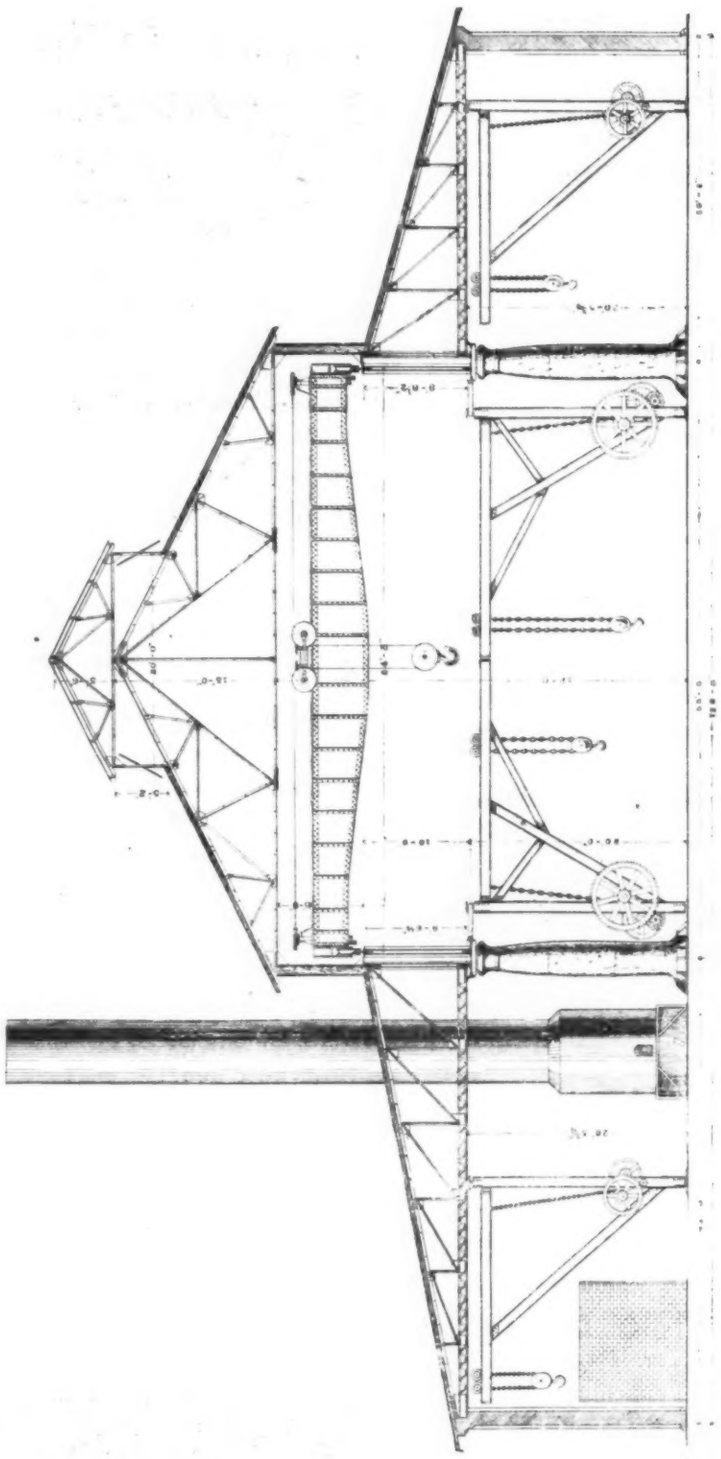

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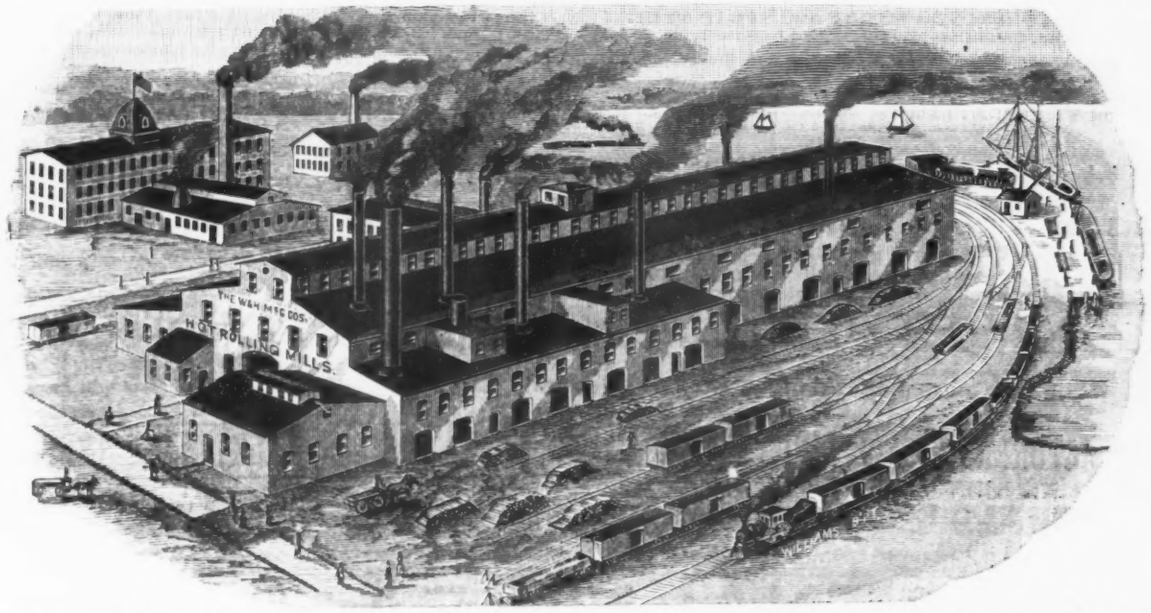

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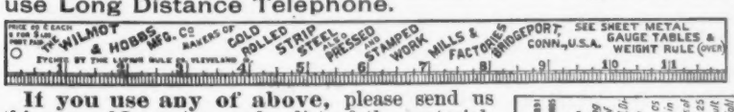

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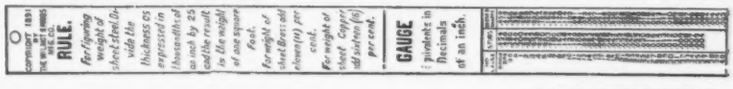

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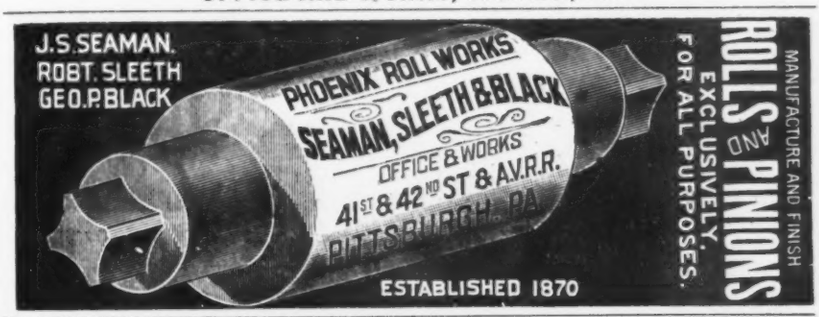

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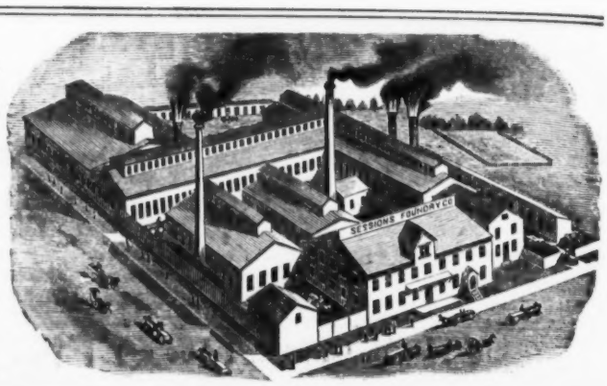

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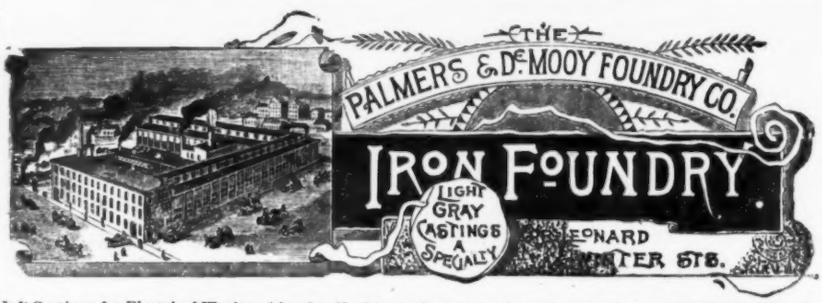

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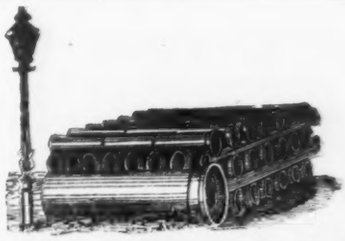

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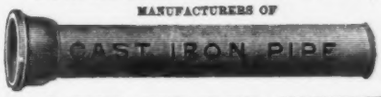

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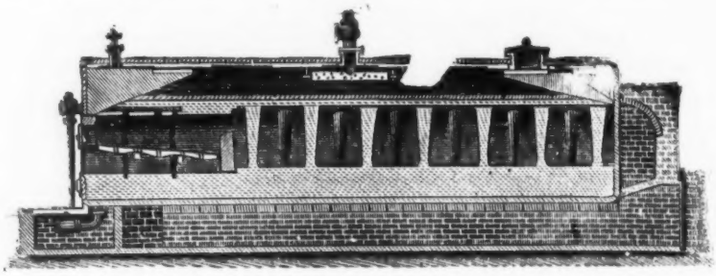

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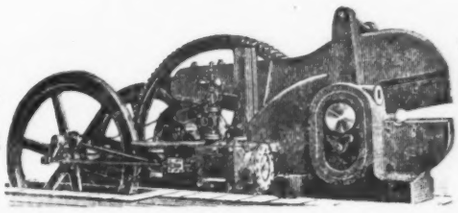

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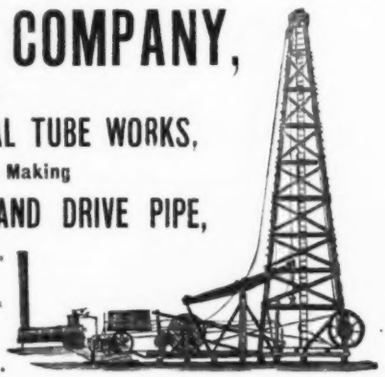

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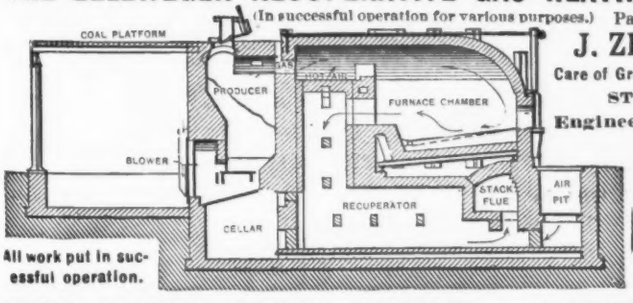

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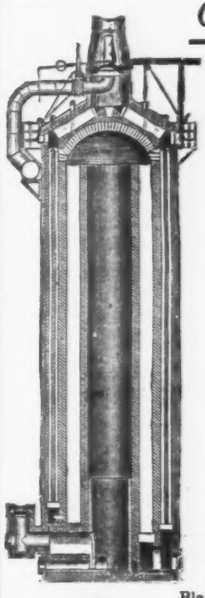

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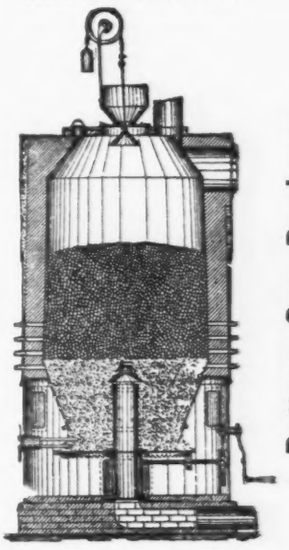

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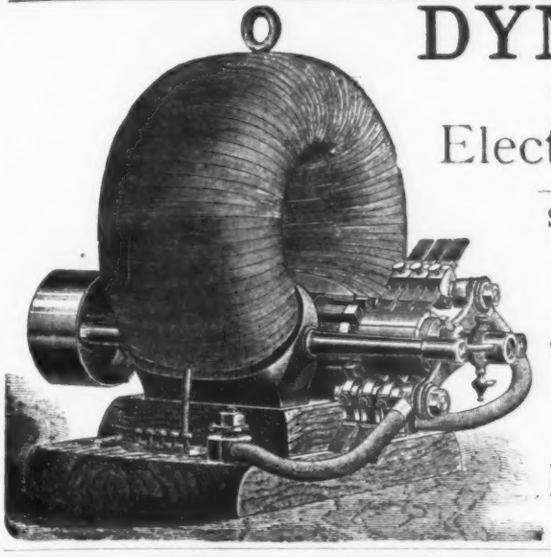

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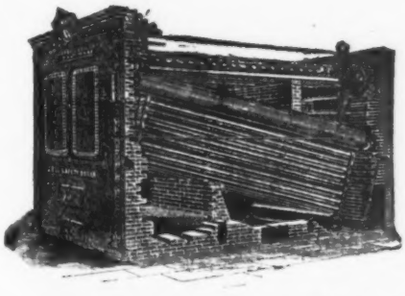

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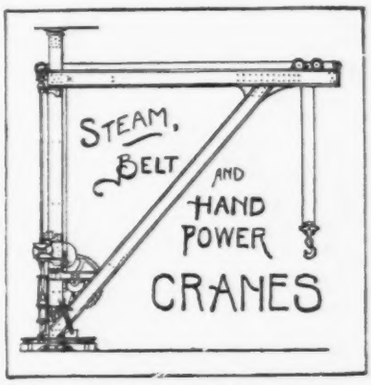

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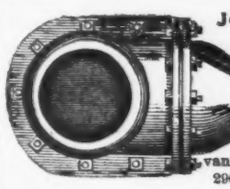

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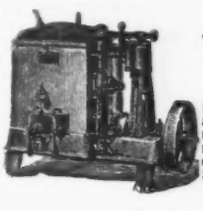

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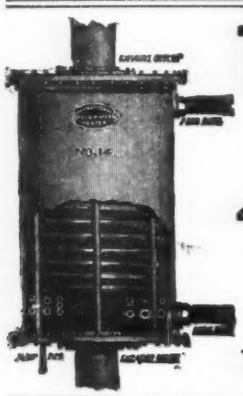

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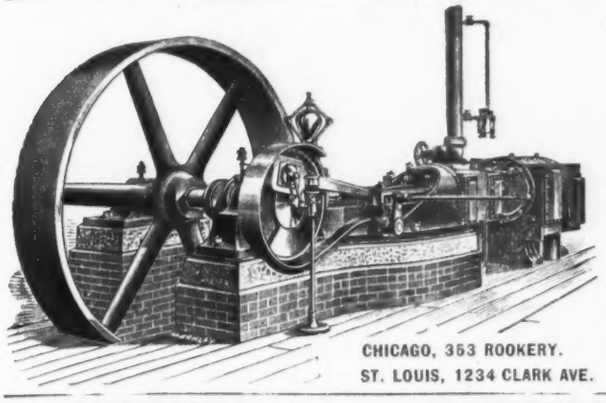

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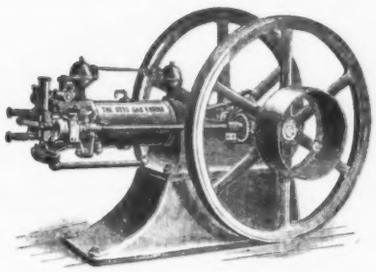

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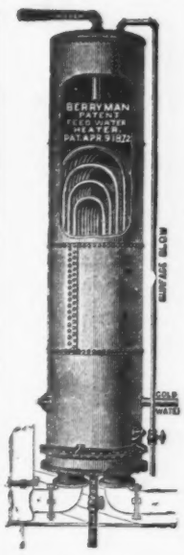

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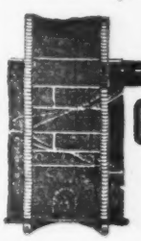

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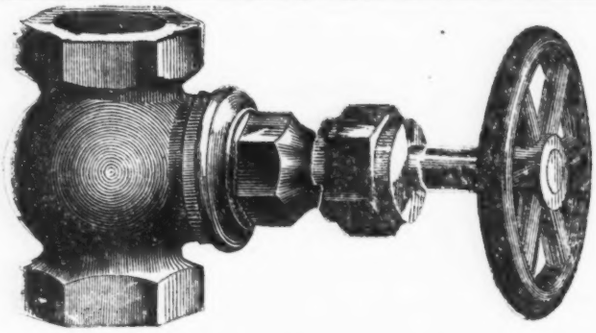

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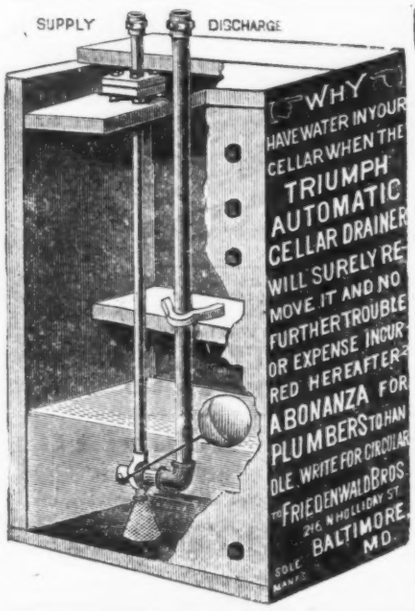

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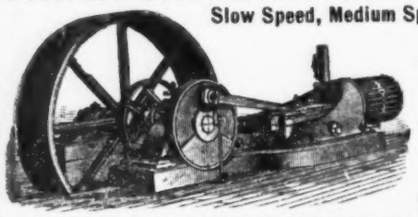

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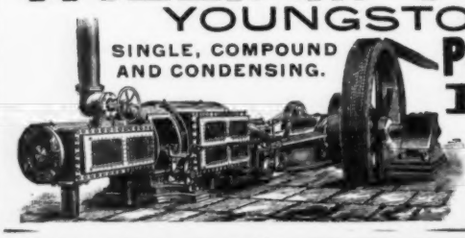

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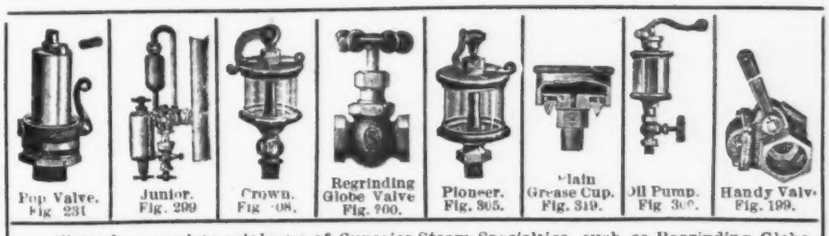

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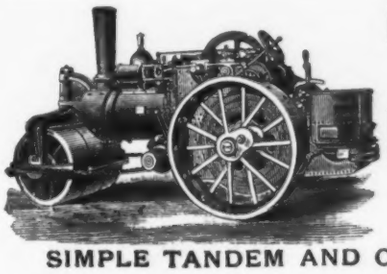

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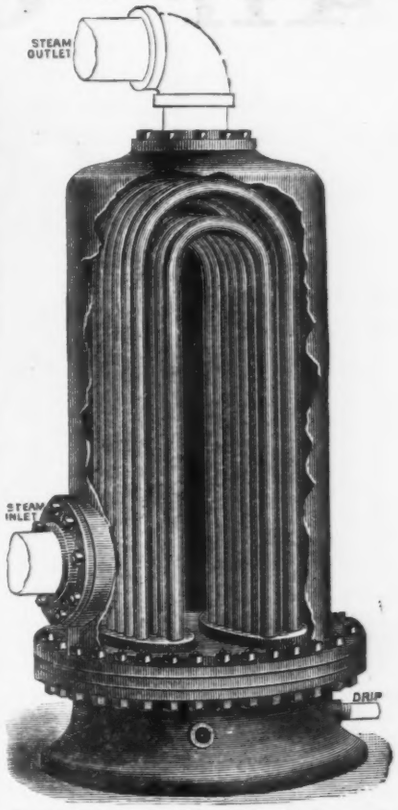

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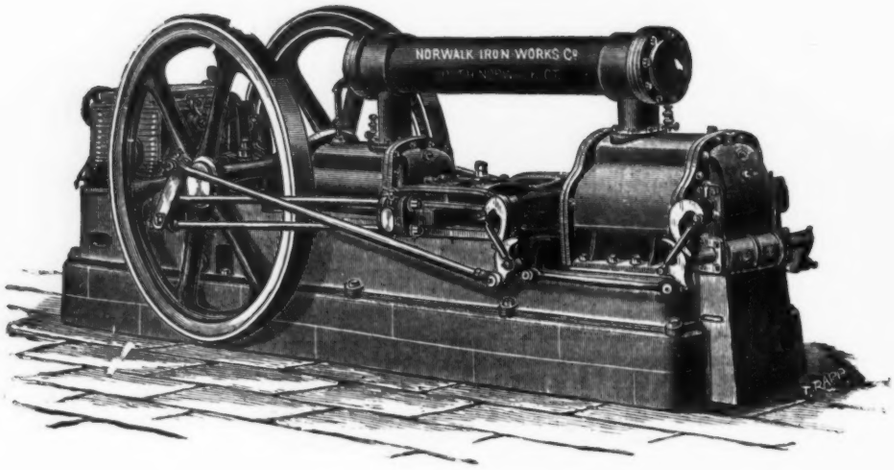

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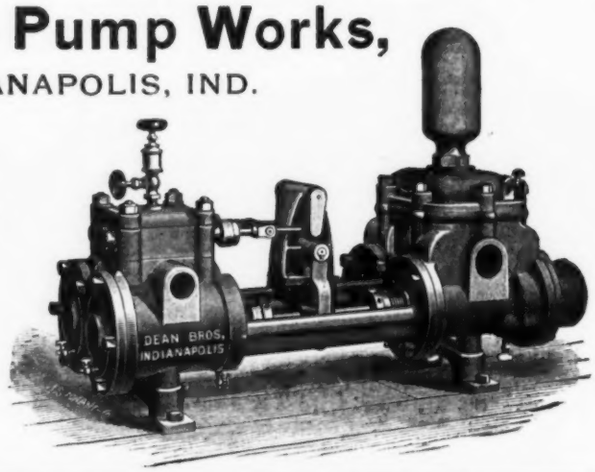

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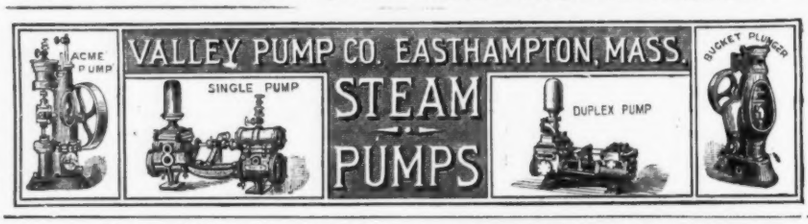

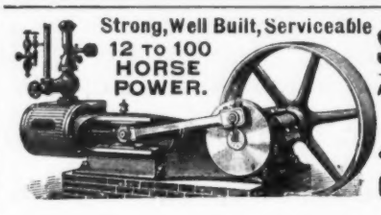

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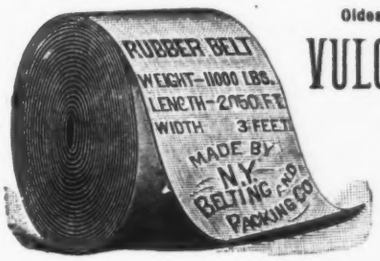

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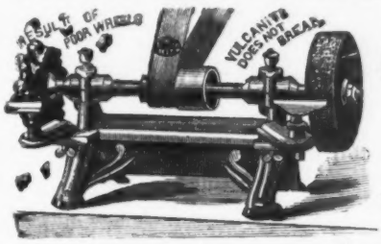

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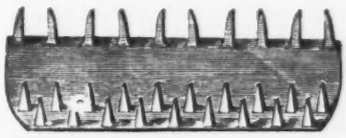

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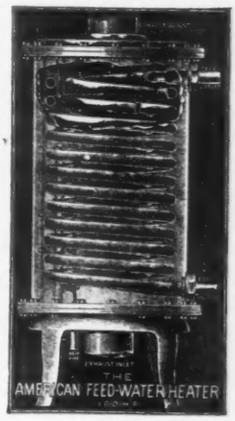

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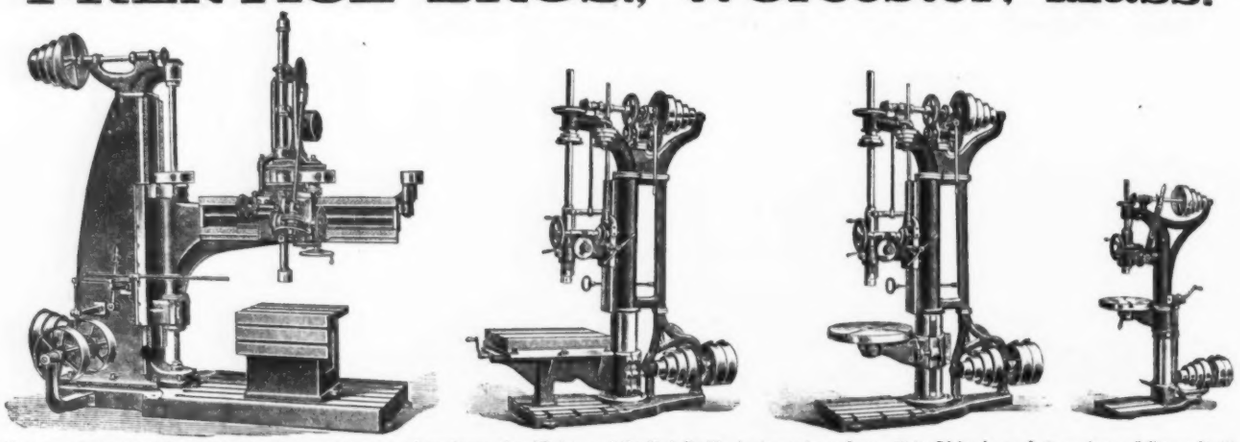

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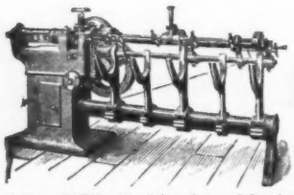

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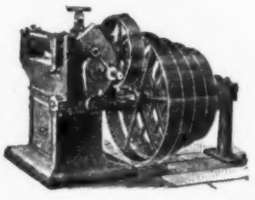

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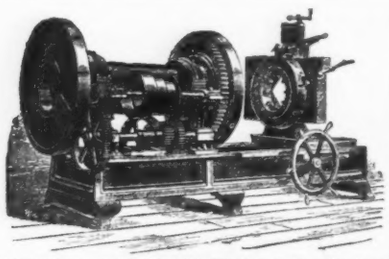

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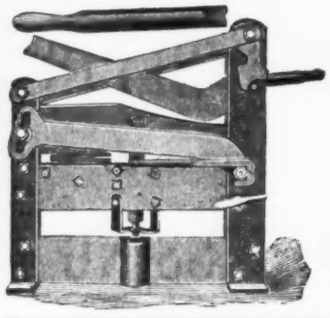

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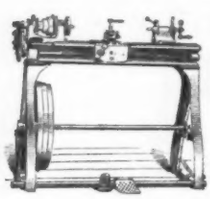

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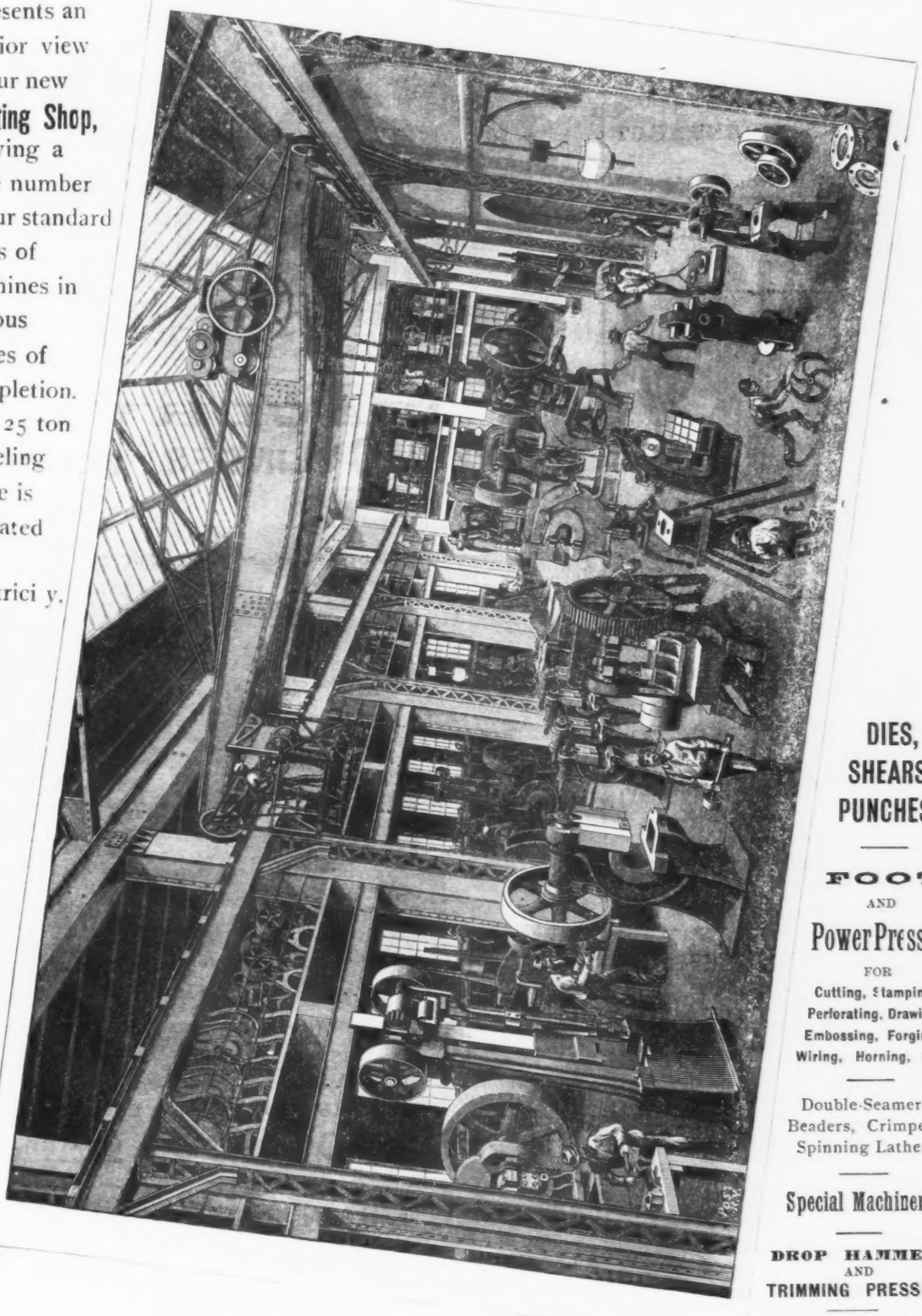

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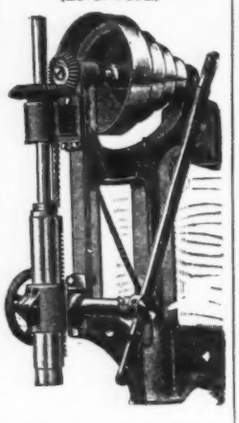

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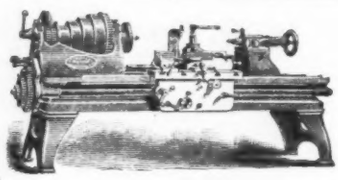

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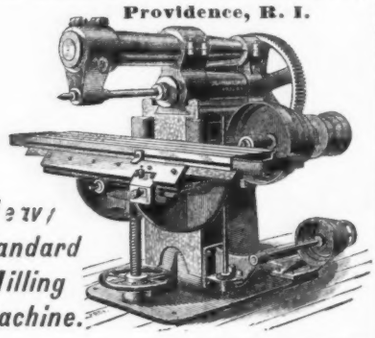

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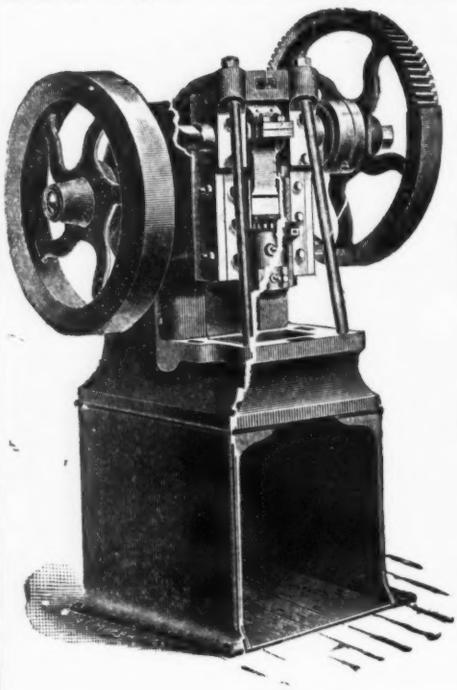

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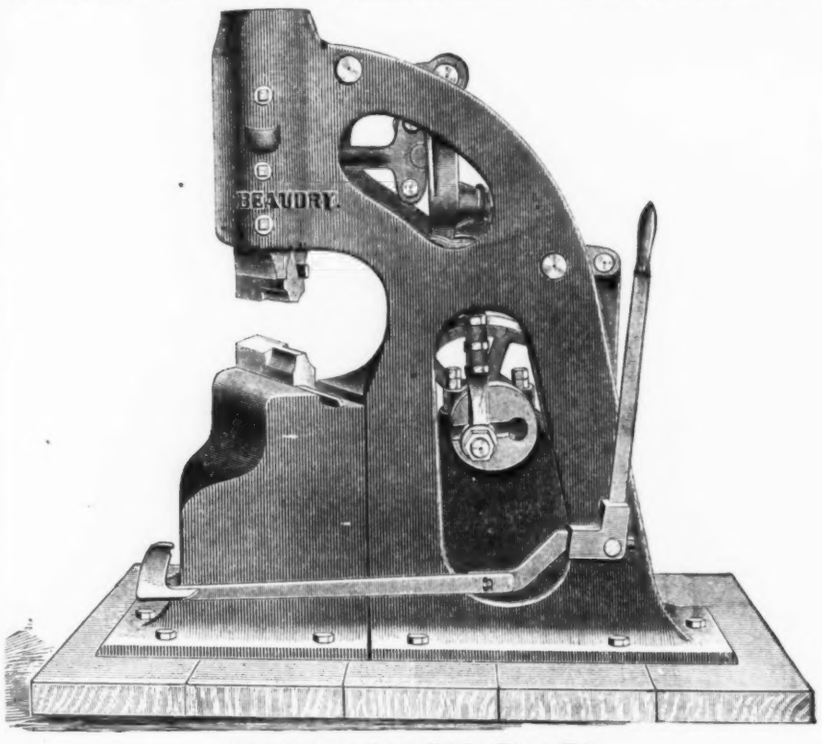

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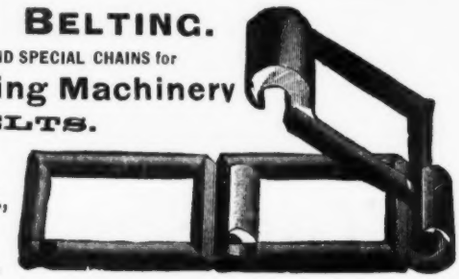

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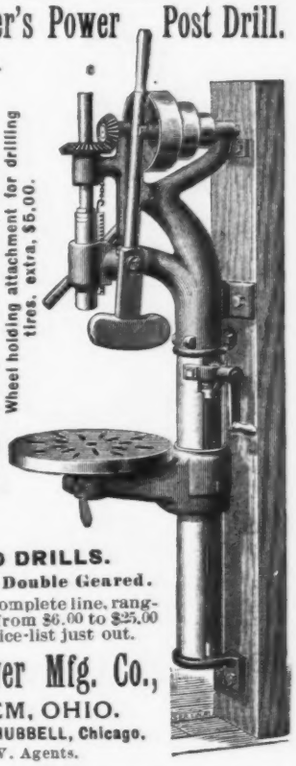

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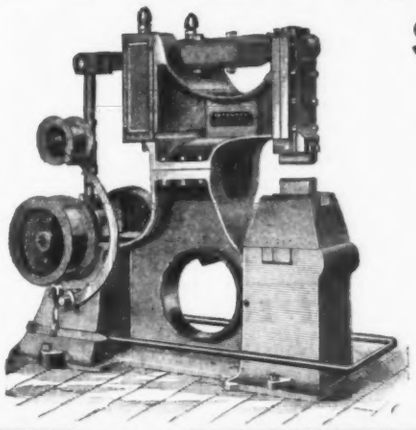

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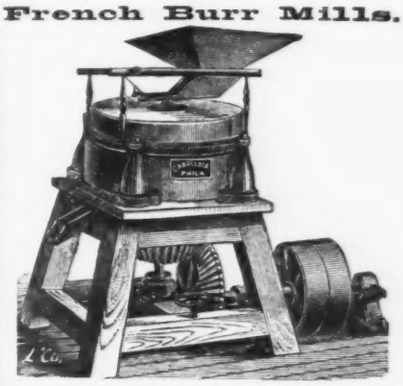

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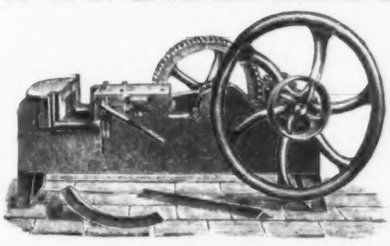

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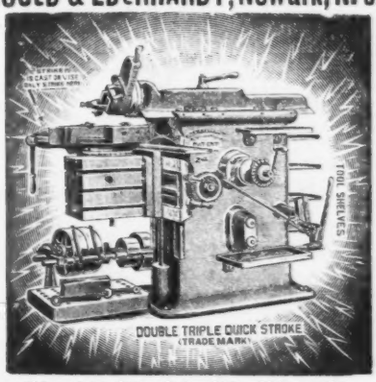

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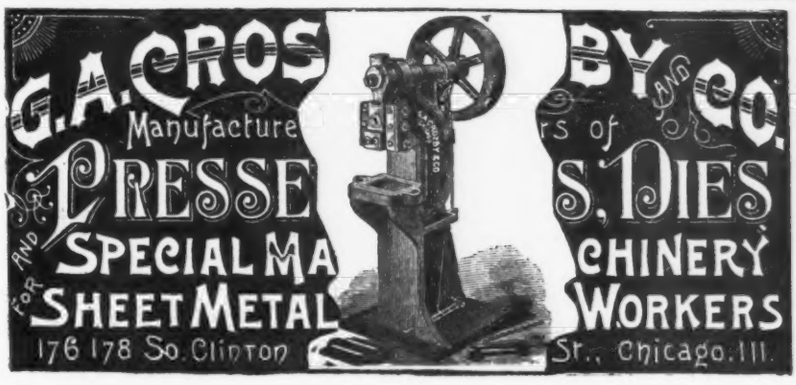

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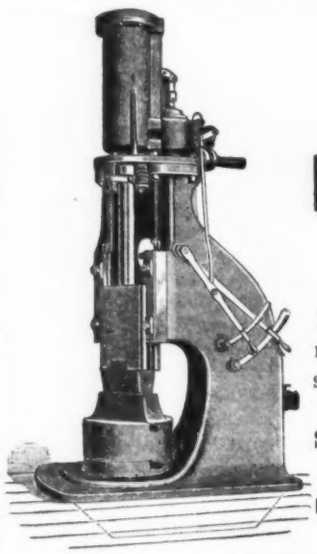

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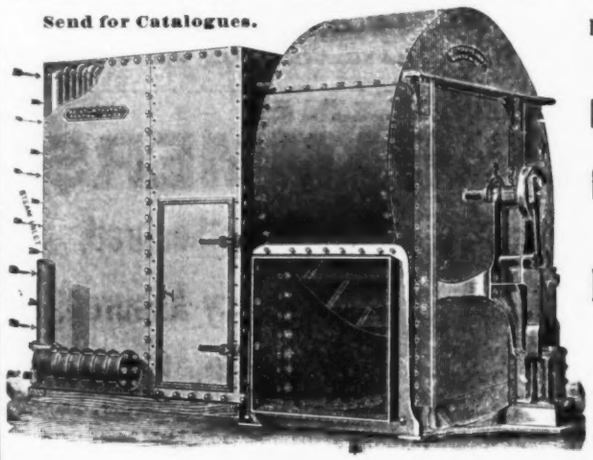

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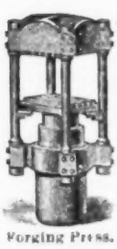

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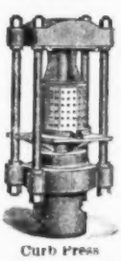

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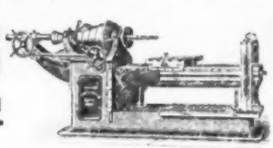

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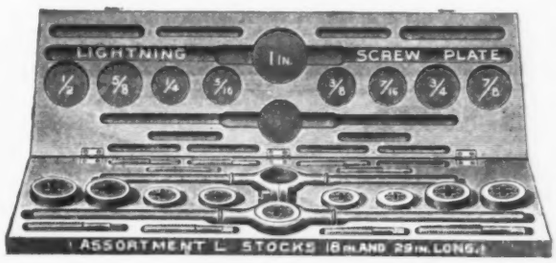

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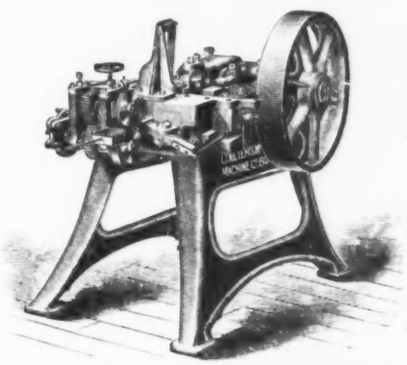

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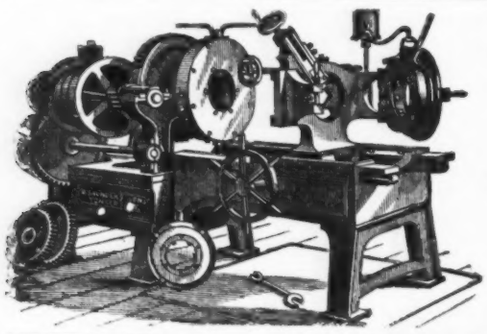

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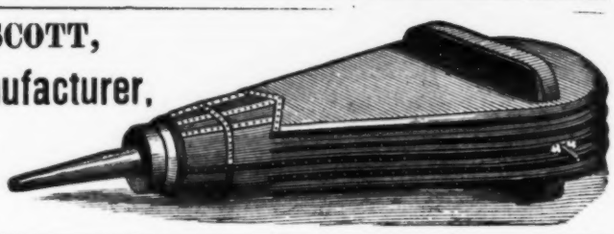

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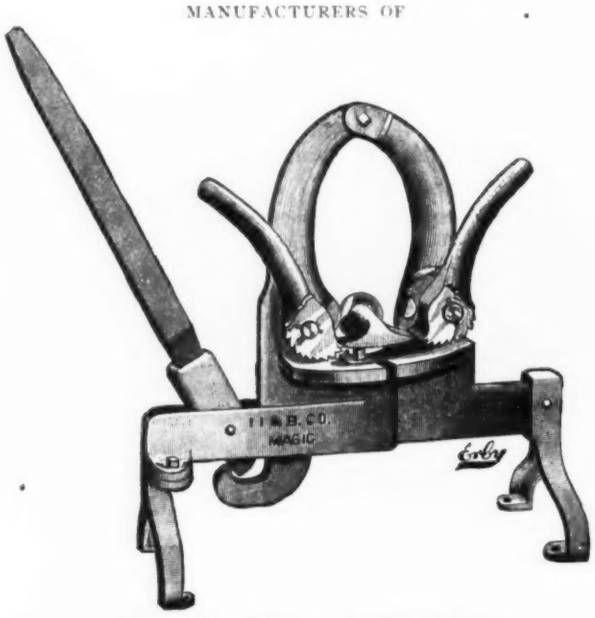

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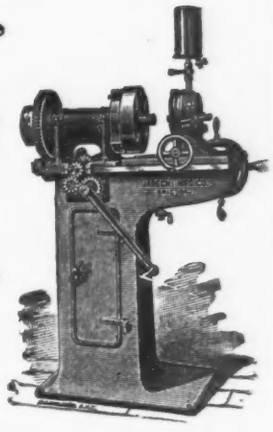

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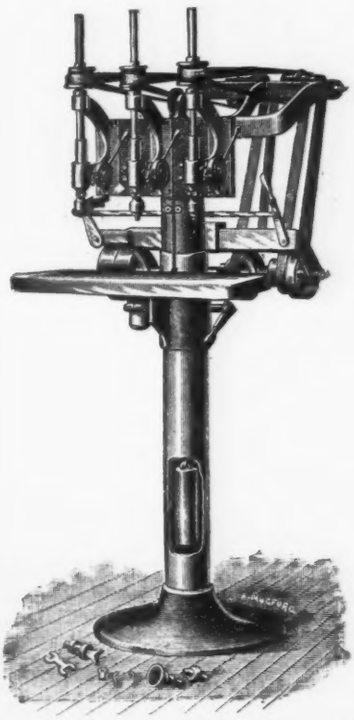

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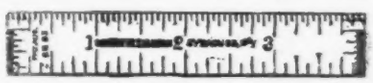

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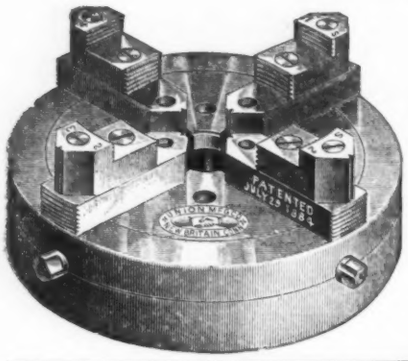

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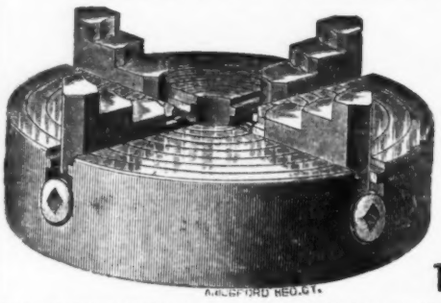

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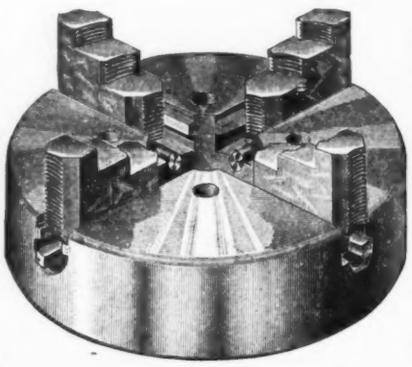

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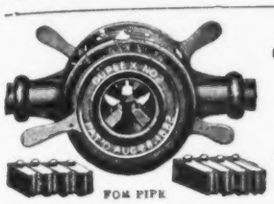

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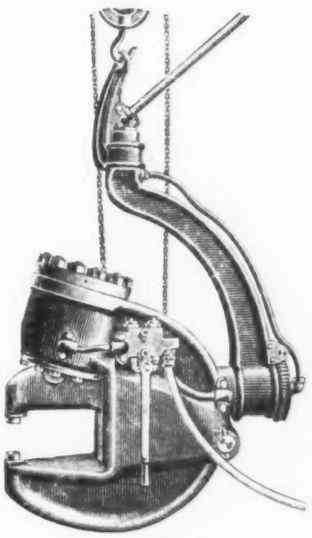

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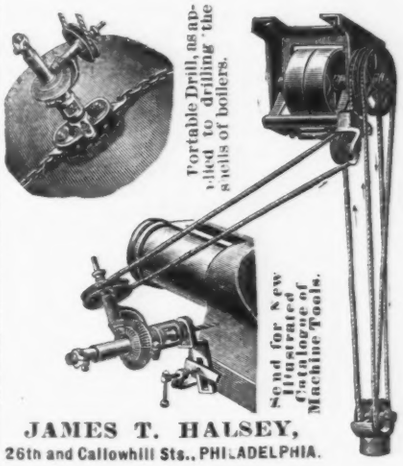

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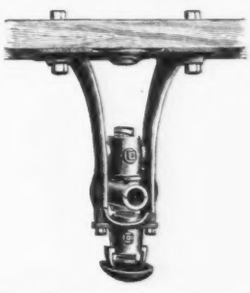

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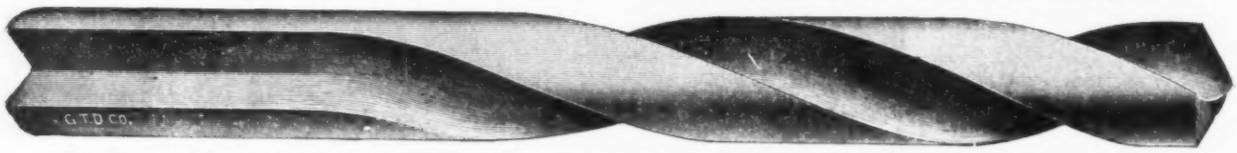

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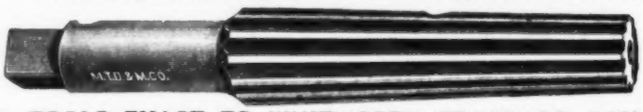

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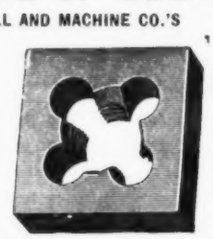

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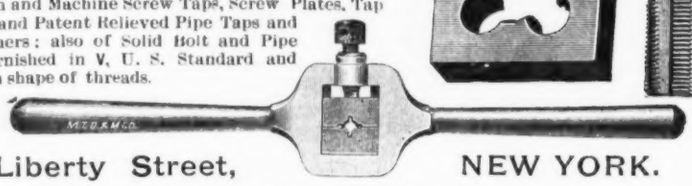

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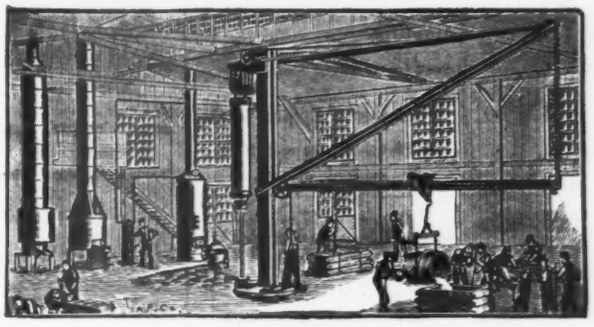

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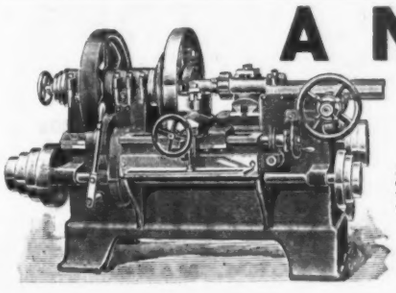

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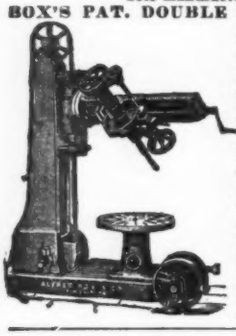

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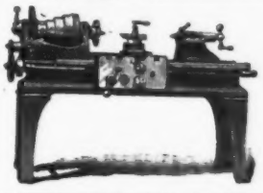

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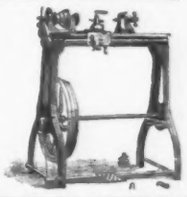

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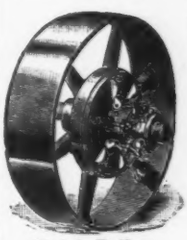

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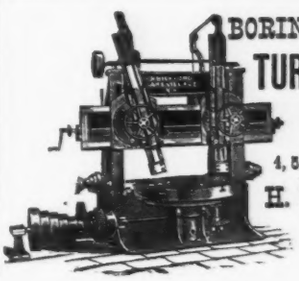

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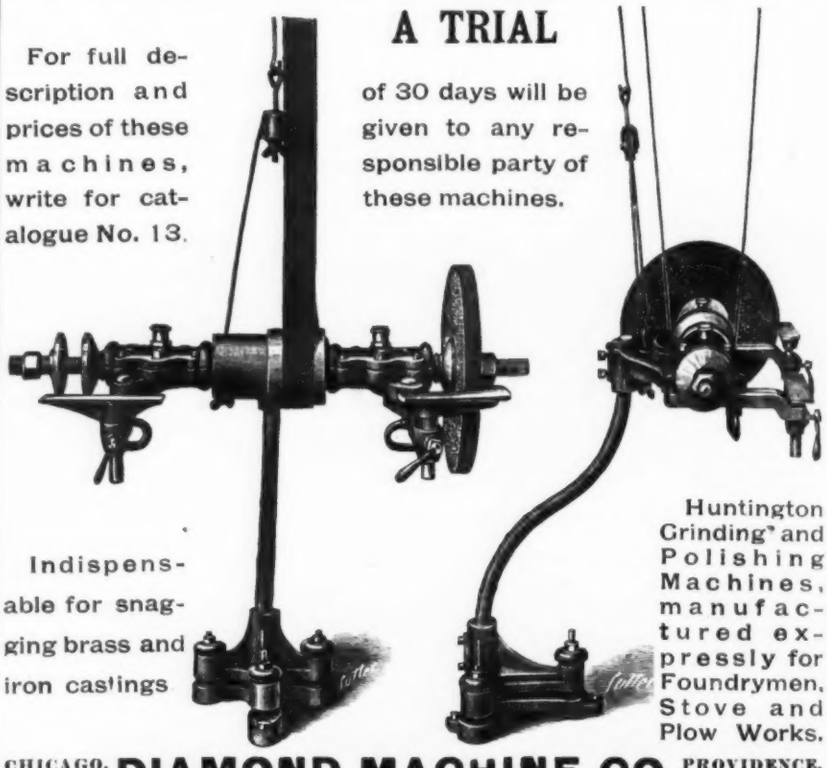

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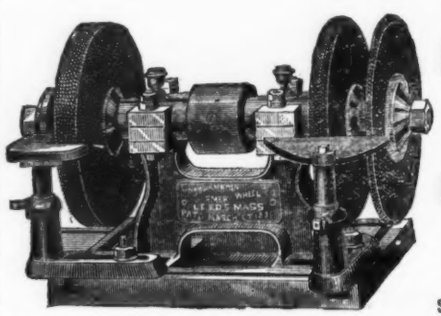

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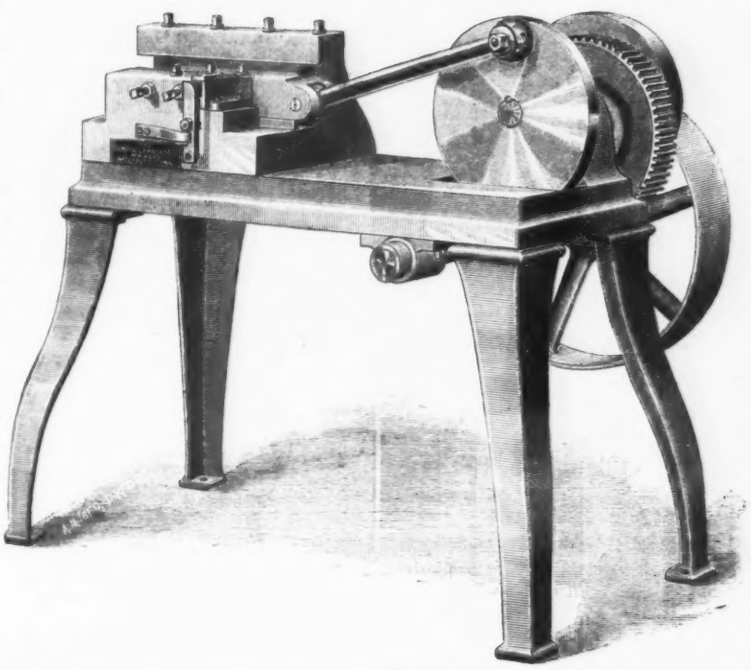

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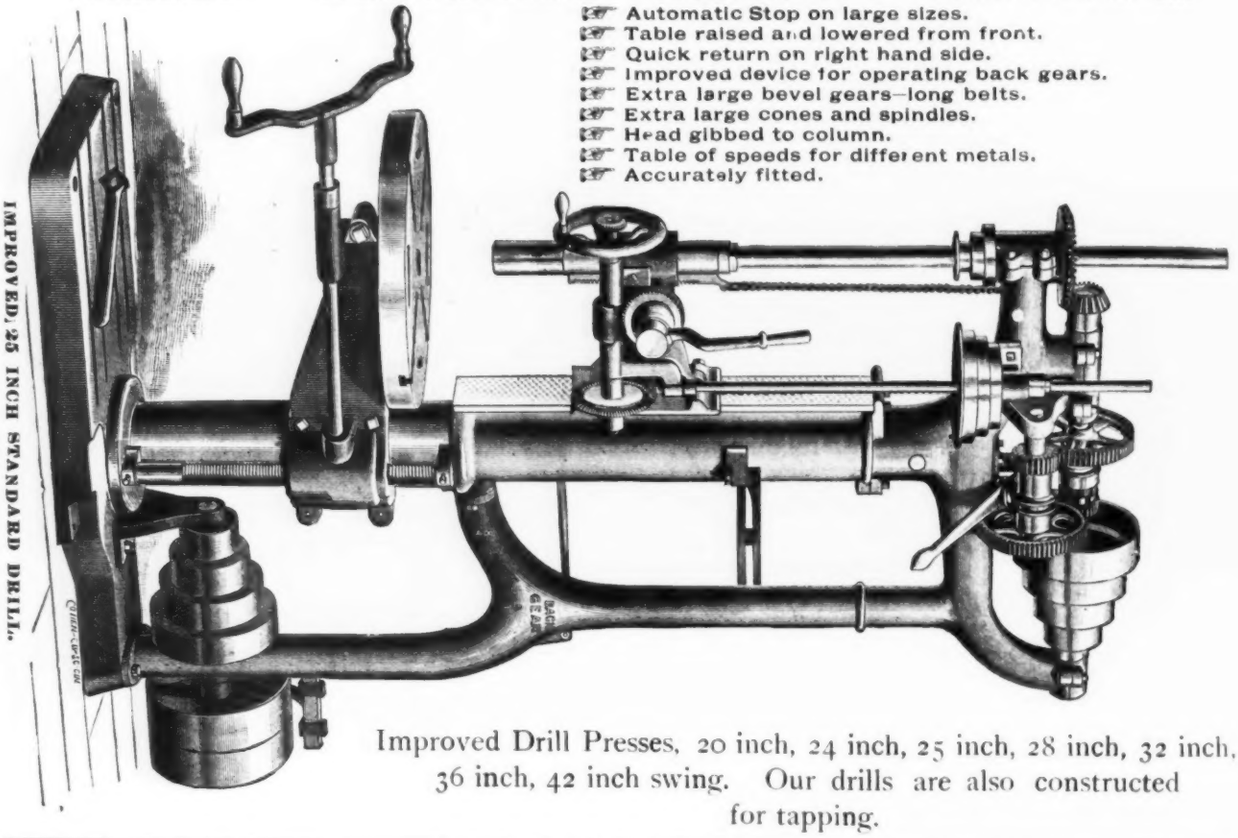

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25 in. x 25 in. x 8 ft. Planer.
36 in. x 34 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No. 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

PENNSYLVANIA MACHINE CO., Ltd.,

31 N. Seventh St., Philadelphia, Pa.

(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

5 clay and ore pans, 11 rail, bar, sheet and clipping shears, 23 hoisting engines, 41 stationary and portable boilers, 48 stationary and portable engines, 12 steam and 9 centrifugal pumps, 3 air compressors, one standard gauge road engine and one standard gauge shifting engine.

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DOUBLE MINE HOIST.

Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¾ x 10 in., with Double Drums, Triple Gear. Large stock of Rock Drills, steam Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

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New Machinery in Stock.

Lathes.

1 32 in. x 16 ft. Fay & Scott. Compound Rest.
1 28 in. x 12 ft. " " " "
1 24 in. x 24 ft. Forsaith. Compound Rest.
1 24 in. x 10 ft. Forsaith. Complete.
1 22 in. x 12 ft. Fifield. Compound Rest.
1 21 in. x 12 ft. Dexter. Compound Rest.
1 20 in. x 13 ft. Hubbard. Compound Rest.
1 20 in. x 8 ft. Extra Heavy. First-class.
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1 18 in. x 10 ft. Dexter. Compound Rest.
1 18 in. x 8 ft. Forsaith. Compound Rest.
1 17 in. x 6 ft. Forsaith. Complete.
1 16 in. x 8 ft. Dexter. Power Cross Feed.
1 16 in. x 8 ft. Blaisdell. Raise and Fall Rest.
1 16 in. x 8 ft. Porter. Complete.
1 16 in. x 6 ft. Blaisdell. Raise and Fall Rest.
1 16 in. x 6 ft. Dustin & Hubbard. Complete.
1 16 in. x 6 ft. Dexter. Power Cross Feed.
1 16 in. x 6 ft. Porter. Complete.
2 15 in. x 6 ft Porter. Complete.
1 14 in. x 6 ft. Sebastian-May.
1 14 in. x 6 ft. Prentice. Complete.
1 12 in. x 5 ft. Sebastian-May.
2 10 in. x 4 ft. Reed. Complete.
1 13 in x 5 ft. Speed Lathe.
4 10 in. x 4 ft. Speed Lathes.
1 9 in. x 48 in. Star Lathe, Foot or Steam Power.
1 9 in. x 54 in. Star, Foot or Steam Power.
2 8 in. x 36 in. Foot Lathes.

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1 36 in. x 30 in. x 12 ft. Davis.
1 30 in. x 30 in. x 8 ft. Davis.
1 24 in. x 24 in. x 6 ft. Davis.

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6 42 in. Davis, B. G. & S. F.
1 28 in. Blaisdell, B. G. & S. F.
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1 23 in. Blaisdell, B. G. & S. F.
20 20 in. Davis, Standard.
10 20 in. Davis, B. G.
1 16 in. Bench Drill.
2 12 in. Davis. Semi-Sensitive.
2 Woodward & Rogers.
1 Barnes 3 Spindle.
1 Norton & Jones 1 Spindle.
1 " " 2 Spindle.
2 16 in. Sensitive. New. Cheap.

Shapers.

1 20 in. Juengst, Friction.
1 20 in. " Crank.
1 15 in. " Friction.
1 15 in. " Crank.
2 15 in. Davis Crank.
1 12 in. Boynton & Plummer.

Milling Machines.

1 No. 4½ Garvin.
1 No. 3 Garvin

Cutting-off Machines.

1 each 3 and 4½ in. Davis.

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Send for Complete List.

GREAT BARGAINS.

50 in. Ames' Engine Lathe.
8 ft. Vertical Boring Mill.
16 ft. Vertical Boring, Turning and Spining Mill.
4 ft. Vertical Boring Mill, with Hub-facing attachment.
18 ft. Boiler Plate Planer.
15 ft. " " "
Heavy Vertical Milling Machine.
Brown & Sharpe No. 1 Plain Milling Machine.
Brown & Sharpe No. 3 Plain Milling Machine.
16 in. x 6 ft. Screw Cutting Lathe.
18 in. x 6 ft. " " "
19 in. x 10 ft. " " "
20 in. x 10 ft. " " "
22 in. x 20 ft. " " "
25 in. x 10 ft. " " "
17 in. x 11 in. x 12 in. Crank Planer.
20 in. x 19 in. x 4 ft. Planer.
31 in. x 26 in. x 8 ft. "
43 in. x 37 in. x 13 ft. "
70 in. x 60 in. x 30 ft. "
17 in. Crank Pillar Shaper.
Horizontal Boring and Drilling Machine.
Suspended Drilling Machines.
Turret Head Brass-Working Lathes.
Profiling Machines.
16 in. Wood-Turning Lathe. Iron Bed.
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Double Nut Tapping Machine.
Pratt & Whitney No. 1 Wire Feed Screw Machine.

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Screw Machines.
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Drop Hammers.
Punching and Shearing Machines.
Lathes, 24 inch swing and larger.
Milling Machines.
Hoisting Engines.

Write us of what you want and send accurate and detailed description of machinery that you wish to trade or sell.

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J. A. MacKinnon Machinery Co.,

Lafayette, N. J.

BARGAINS FOR CASH.

Write for Prices.

1 32 in. Lathe, 5 ft. bed.
1 24 in. Lathe, 10 ft. bed.
1 24 x 24 x 7 ft. Planer.
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1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12¾ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 28 in. Lathe 15½ ft. bed.
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1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " " "
2 42 in. x 11 ft. " Boilers "
1 22 in. Niles Drill Press.
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18 in. x 24 " " "
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1 15 H.-P. Shapely " " "
2 36 in. Band Saws.
Vertical Boilers and Engines. Second-hand.
3 to 30 H.-P. Horizontal Engines and Boilers. New and Second-hand.
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1 15 in. x 8 ft. Porter Lathe. New.
1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

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Second-Hand MACHINERY.

One Sellers single head Driving Wheel Lathe, 78 in. swing, 15½ ft. bed. Fine condition.
One Putnam Screw Cutting Engine Lathe. 36 in. swing, 12 ft. bed. A modern tool and in very fine order.
One Iron Planer, to plane 40 in. wide, 36 in. high, 6 ft long.
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One Blaisdell Gear Cutter, will cut up to 40 in diameter. In fine order.

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Four 100 H.-P. Horizontal Tubular Boilers.
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Two 60 H.-P. Horizontal Tubular Boilers.
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One 50 H.-P. Locomotive Fire Box Boiler.
Upright and Horizontal Tubular Boilers, all sizes constantly on hand. Write for prices.

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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

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Steam Engine.

One 14 in. x 24 in. Watertown Automatic Steam Engine in good order. Run less than 12 months. Will be sold cheap for want of use.

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A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

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78 in. " 17 ft. " Screw Feed. Good.
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21 in " 10 and 12 ft. " "
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15, 18 and 25 in. stroke. Crank Shapers, Steptoe. New.
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54 in. x 48 in. x 12 ft. " Hewes & Phillips, 2 heads.
54 in x 42 in. x 24½ ft. "
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100 H.-P. Westinghouse Standard Engine.
11 x 18 Horizontal Slide Valve Engine.

2000 lb. Bement Steam Hammer.

100 lb. Bradley Helve Hammer.
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Ingersoll-Sergeant Air Compressors.

1 14 in. x 18 in., Latest Improved Piston Inlet, used ten weeks.
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These Compressors with or without drills, receivers, &c.

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GOOD THINGS CHEAP.

1 18 in. x 12 in. x 36 in. Cameron Pump.
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Lot Rock Drills, Hoisting Engines, Locomotives Dump Cars, &c., &c.
Send for Catalogue.

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SECOND-HAND,

1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

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Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No. 1 Wrought Iron Scrap. Correspondence solicited.

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One Atlas Plain Slide Valve Engine, 10 x 16, and one 42 x 12, **Boiler** to go with the Engine. Both in excellent condition. Fittings complete. At a bargain.

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BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. J. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

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3000 tons No. 1 bessemer.
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For immediate delivery.

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FEED-WATER HEATERS.

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

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1 Horizontal Boring Machine, swings 69 inches over bed, 55 inches over table, 6 feet between centers; power longitudinal and cross feed.

Iron Planer, planes 42 in. x 42 in. x 20 feet, one head on cross beam.

The above tools of our own manufacture and never used except in our own shop; in good condition, but not large enough for our present need.

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20 in. x 36 in. Horizontal Engine, Pool & Hunt make.
11 in. Shaft, 14 ft. Wheel in halves.
17 in. x 24 in. Cyl. Armington & Sims Engine.
18 in. x 12 in. x 18 in. Blake Pump, 8 in. Suc. H. L.
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72 in. x 18 ft. Horizontal Tubular Boiler, 4 in. tubes.

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One second-hand Corliss Condensing Engine, cylinder 30-inch diam. x 72-inch stroke, fly wheel 24 feet diameter x 80-inch face; one second-hand Corliss High Pressure Engine, cylinder 26-inch diameter x 48-inch stroke, fly wheel 20 feet diameter x 72-inch face. Ready for immediate delivery.

ROB'T. WETHERILL & CO., Chester, Pa

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Large lot of Loco. Boilers,
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Can furnish stacks, grates and all fittings to suit purchasers.

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BOILER TUBING

5 in. diameter. Two lengths, 12 ft. and 15 ft., coupled.

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Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs. pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.

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CRANK and GEARED SHAPERS.

Write us for Bargains.

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PUMPS, ENGINES, MACHINERY.

No. 5 New Pulsometer and Fittings..... $100.
2 No. 9s " " " " ..... 350.
6 x 9 Centre crank Engine, Pump, Heater and Governor..... 140.
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36 in. Wing Disc Ventilating Wheels..... 35.
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A number of large Cog Wheels, Cast Iron Shafts and Bed Plates of Engines, cheap. Address

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Set of Tinner's tools, lot of Hardware Boxes, Wrought Iron Shears made by the Cleveland Hardware Company and a National Cash Register. For further particulars, address

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CORLISS

Automatic Engines.

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ELECTRIC LIGHT, HIGH SPEED AND SLIDE VALVE ENGINES IN FIRST-CLASS CONDITION FOR IMMEDIATE DELIVERY AT VERY LOW PRICES.

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Locomotive Boiler, 6 ft. x 21 ft. (2).
Locomotive Boiler, 4 ft. x 10½ ft.
Zell Water Tube Sectional Boiler, 75 H.-P.
Horizontal Tubular Boiler, 5 ft. x 16 ft.
Horizontal Tubular Boiler, 5 ft. x 16 ft.
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"Giant" Railroad Excavator and Wrecker.

Built by Vulcan Iron Works Co., of Toledo, O., Mounted on Standard Gauge Car, Capacity 2000 yards. Double Hoisting Engines 10 in. x 12 in., Single swing Engines 10 in. x 12 in., Boiler 4½ ft. x 9 ft., Water Tank 1000 gallons. Will sell or rent to responsible parties.

30 x 60 Corliss Engine, 26 x 60 Corliss Engine,
26 x 42 Corliss Engine, 24 x 48 Corliss Engine,
18 x 48 Corliss Engine, 12 x 36 Corliss Engine,
22 x 42 Wright Engine, 18 x 42 Brown Engine,
18 x 28 Watertown and 12 x 12 Fall Engine.
Send for Lists.

General Machinery.

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Squaring Shears, 42, 48, 66 and 120 inches.
Power Punches, L. & A., Nos. 2 and 3. Very good.
1 Double Punch and Shear, punches 1½ x 1 in. Very good.
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3 Chucking Lathes, 24, 50 and 54 in. Bargains.
Engine Lathes, 40 x 22, 50 x 16, 26 x 30, 20 x 10.
Planers, 12 ft. x 5 ft. x 16 ft., 42 in. x 10 ft., 32 in. x 8 ft.
Drop Hammers, 700 and 1000 lbs.
New Upsetter and Header, upsets on end or any point on rod, made for ¾ rods and smaller. Send for circulars.
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Wood-Working Machinery of all kinds.
Write me before purchasing.

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We own and offer for sale, in lots to suit, about 500 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler; eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.
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Complete steam forge works, slate roof buildings, 120 x 72 ft. and 30 x 24; two latest improved Bement & Miles hammers, 2 cranes, complete telegraphs, No. 14 Buffalo Blower, 2 heating furnaces, 100 H. P. boilers, 50 H.-P. engine, double header cut-off, 22-foot lathe, centering and emery machines, full set Fairbanks scales, R. R. and wagon scales, full sets tools, dies, &c., for all manner of work, sidings of two railroads and flowing water and borough system of buildings. Terms, 20 per cent. cash, 30 per cent., Sept. 19 and balance April 1, 1893. For information address J. T. BAKER, Lewisburgh, Pa.

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GAS ENGINES, 5 and 10 H.-P., new, guaranteed.
BOLT HEADERS, new improved Lewis, will make all kinds, without changing tools.
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BOILER, new 50 H. P., near Philadelphia
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GAS ENGINE 10 H.-P., Otto.
HAMMER, Dudgeon, 10 x 30, complete, 2 rams.
PLANER, new, never unboxed, arrived too late for shipment.

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ENGINE LATHES.
14 in. x 6 ft. Bogert, H. S., Elevating Rest, Chuck fitted. A1 condition.
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17 in. x 17 in. x 5 ft. Whitcomb, complete. A1 condition.

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2 20 in. Davis, Wheel Feed Quick Return. Good order
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1 No 2, 3 Spindle Garvin, Elevating Table. A1 condition.
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2 No. 1 Brown & Sharpe plain Millers, complete. A1 condition.
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1 15 in. x 5 ft. Am. Tool & Machine Co.'s Fox Lathe, square Arbor, compound Slide Rest, complete. Good as new.
Write for list of over 350 new and second-hand Tools in stock for immediate delivery.

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IRON T RAILS,

35 pounds to the yard, and Centre Bearing Street Rails for sale, fit to relay and in lots to suit. Apply to

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RELAYING RAILS
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Rails for relaying, in good condition.

200	tons	52 lb.	Steel	Johnstown	Girders,
300	"	40 lb.	"	T	Rails with Splices.
350	"	35 lb.	"	T	" "
100	"	20 lb.	"	T	" "
220	"	35 lb.	Iron	T	" "
100	"	25 lb.	"	T	" "

I am also in the market to buy or sell any weight second-hand rails and scrap.

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Address communications to
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Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

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A plant for manufacturing Radiators and Boilers; two story brick building, over 300 feet long, with ample land, side track and best railroad connections, with complete equipment of first-class modern machinery, patterns, &c; ready to start up at once; will be sold at about half price. Address

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SPECIAL TO MANUFACTURERS!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations. 170 x 900 feet; N. Y. C. R. R. switch full length of property. I will advance one-half money necessary for erection of permanent buildings.

E. G. FELTHOUSEN, Room 42,
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—: A :—
MANUFACTURING PROPERTY.

Splendidly located in a thriving Western City, lying adjoining main line of prominent railway. Every convenience of receiving and shipping over five railways; favorable freights, and floor space exceeding 100,000 feet, sufficient extra land for additions. Running full with capacity of 150 H.-P. Would sell the whole with a business well-established for many years, or would form an association with good party for the manufacture of goods adapted more to spring and summer trade, the opposite of present output of fall and winter goods. We consider this an opportunity rarely offered. Would take half interest in a satisfactory connection with agricultural goods or similar class. Good reasons will be given for making this proposition. This party would be pleased to share the management of the business with an equal partner or retire the whole care of it if the association proves satisfactory.

"X. O. F.,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

AUGER AND BIT FACTORY FOR SALE.

We offer for sale at a very low price our manufacturing business, located in the beautiful and growing village of Centerbrook, in the town of Essex, State of Connecticut. It has one of the best water-powers in the State. Good buildings, well fitted-up with special tools and machines for making Jennings' Bits, Expansive Bits and all other wood boring tools. With a capacity for employing from 50 to 75 men.

CONN. VALLEY MFG. CO.,
Centerbrook, Conn.

TO MANUFACTURERS.

The owner of a valuable Rolling Mill property could spare about 200 square feet of land with water power, and would lease or make other arrangements with suitable parties for its occupancy. The location, within 40 miles of Philadelphia, is in all respects a desirable one; population about 4000, from which an unusually intelligent class of labor could be secured.

For further particulars address

"K. C.,"
Box 1086,
Philadelphia, Pa.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

FAIRBANK'S TRACK SCALE
FOR SALE.
60 tons capacity. Nearly new. For immediate removal. At a bargain, cash or trade.
MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

WANTED.

A modern first-class, second-hand Horizontal Engine, 40 to 60 H.-P., spot cash.

M. B. SCHENCK & CO.,
Meriden, Conn.

FOR SALE.

Sealed proposals will be received until noon of June 15, 1892, by W. F. Kyle, Manager for the Trustees of the Fieldhouse & Dutcher Mfg Co., 30 & 32 West Monroe St., Chicago, Ill., for the sale of the entire property of said Company, including accounts; or for the sale of the merchandise, machinery and fixtures, in whole or in part.

The amount of sales in 1890 and 1891, combined, exceeded $800,000. The business shows a considerable capital over liabilities.

The Trustees reserve the right to reject any or all proposals. The books, accounts, merchandise and other property will be exhibited to any responsible persons who may wish to submit proposals for purchase. Blank forms will be furnished for proposals. Proposals may be sent to Mr. W. F. Kyle at the above address, and will be forwarded to the Trustees at New York for acceptance or rejection by June 20.

The Trustees of
FIELDHOUSE & DUTCHER MFG. CO.

FOR SALE.
The patents and machinery for making Corrugated Barbed Ribbon Fencing. Machinery in first-class order, will put on 120 barbs per minute. Everything in good shape.
WILLIAM BURTIS, New Egypt, N. J.

FOR SALE.
Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.
The Lodge and Davis Machine Tool Co.,
Cincinnati, Ohio.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?
DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?
WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points.
ADDITIONAL CAPITAL ALSO PROCURED
WRITE FOR PARTICULARS
YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY.

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.
CHAMBER OF COMMERCE BLDG, CHICAGO
THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

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Suburban Traffic Agt., 317 BROADWAY, N. Y.

OGDEN, UTAH,

Offers the best location on Earth and $100,000 for an iron works; $50,000 for a reduction works for silver-lead ores; $50,000 for stock yards; $25,000 for woolen mills; $10,000 for a paper mill; $5000 for a pottery; $5000 for a tannery $5000 for glass works.

—OGDEN—

Has Natural Gas, Mountains of Coal and plenty of Iron and NERVE. We mean business. No dead-heads or adventurers need apply.

SECY. CHAMBER OF COMMERCE,
Ogden, Utah.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
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FOR SALE.

A thoroughly well assorted stock of Shelf Hardware, House Furnishings, Stoves, &c., located in a growing and thriving Illinois town of 25,000 inhabitants; stock $8,000 to $10,000. The town is noted for its manufactures and is surrounded by the finest agricultural lands in the State. The business well established and thriving. Address "LIGHT," office of *The Iron Age*, 96-102 Reade St., N. Y.

THE CHICAGO, MILWAUKEE & St. Paul Railway Company desires to have the raw material on its 6150 miles of road in Illinois, Wisconsin, Northern Michigan, Iowa, Missouri, Minnesota, South Dakota and North Dakota utilized.

In addition to the vast agricultural resourses, its territory comprises Forests of Hard and Soft Wood, Mines of Iron and other Metals Coal and other Minerals, Quarries, Clays of all kinds, Tanbars, Flax and other products. Water-powers (both river and artesian) are also still available.

A number of new factories have been induced to locate—largely through the instrumentality of this Company—at enterprising towns on its lines.

As the interest of the Company is to secure the location of industries at places where the surroundings will insure their permanent success, the information furnished a particular industry is pertinent and reliable.

The people on the whole System are one live and thriving community of business men in whose midst it is safe and profitable to settle. Local capital is being largely invested in local factories, and taken as a whole, the country through which the road runs is commanding attention as the coming industrial territory of the United States. Solid Concerns, Manufacturers, large or small, who thoroughly understand their business are sought for at suitable points on the road.

Individuals or companies wishing to embark capital in Western industry can find a profitable field.

For particulars relative to industrial advantages on the line, address

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Industrial Commissioner,
C., M. & St. P. R'y, 160 Adams St., Chicago, Ill.

HARDWARE ACENCY WANTED.

Have an established Manufacturers' Agency of 12 years' standing and want a large manufacturer of general hardware to represent in this market. Am a thorough hardwareman.

Address
"HARDWARE,"
1117 Chamber of Commerce, Chicago.

MALLEABLE IRON PLANT FOR SALE or TO LET.

Best Location in Albany, N. Y.
Suitable for any Iron Manufacturing Business.
1 Air Furnace. - 2 Cupolas. - 3 Kilns.

The property of the Capital City Malleable Iron Co. (now occupied by the Troy Malleable Iron Co., whose lease expires October 1, 1892). Substantial five story brick building with high trussed roof, building attached covering entire block bounded by Fourth avenue, Broadway, Church and Vine streets, and one-half block adjacent property, with stable, coal sheds, &c.

Two hundred feet from dock, with West shore and D. and H. Railroad track alongside of building. Fitted out with first-class steel boiler, engine, shafting and Otis steam elevator. Buildings in excellent repair and machinery in the best running order. Apply to DAVID F. SKINNER, President 199 Broadway, or E. C. SKINNER, Secretary, on the premises.

FOR SALE.

The Entire Plant of the ALEX. K. RARIG CO.,

Engineers, contractors, founders, machinists and boilermakers.

BUENA VISTA, VA., JUNE 16, 1892.

AT PUBLIC AUCTION.

IF INTERESTED WRITE FOR PARTICULARS.

J. E. MULLEN, Trustee.

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In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft. x 100 ft., with 30 H.-P. Engine and Boiler and 40 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

W. C. MEEKER,
Henderson St., Jersey City.

Machine Shop, Iron Foundry, Pattern and Forging Shops.

Concern having well equipped and thoroughly organized departments as above, want specialties to build.

Facilities for fair, good and high grades of quality and medium light to heavy weights Would buy patents.

"W. SPECIALTIES,"

Office of *The Iron Age*, 96-102 Reade Street, N. Y.

FOR SALE.

An established retail hardware business in a live, beautiful, healthy and growing manufacturing city in the Northwest; fine modern store in a central location; business well established; stock about $25,000; splendid chance to step into a business already established, with opportunity to extend all one could wish (no trade for real estate). For further particulars, address "NORTHWEST," Box 331, office of *The Iron Age*, 96-102 Reade St., New York.

BICYCLES.

A manufacturing company with one of the best equipped shops in New England is prepared to accept contract for the manufacture of 1000 or more Safety Bicycles for the season of 1893. Have had experience in this line and are prepared to make satisfactory arrangement with right parties desirous of putting a Bicycle on the market. Addr ss "BICYCLE 1893," office of *The Iron Age*, 96-102 Reade St., New York.

WANTED.

Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

GAYNOR & MITCHELL MFG. CO.,
Bridgeport, Conn.

WANTED.

To furnish reasonable estimates on specialties in light metal work to order.

CLARK & COWLES, Plainville, Conn.,
Manufacturers of Clock Trimmings, Rivets, Springs, &c.

Business Chance.

Good complete Retail Hardware Stock for sale in city of New Haven, Conn., one of the best localities in the State for the business. Value of stock $15,000 to $20,000. Inquire "CONNECTICUT," Box 421, office of *The Iron Age*, 96-102 Reade St., New York.

IF FROM ANY CAUSE

You have goods to offer at specially low figures for **SPOT CASH**, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of **SPECIAL LOTS,**
75 Chambers St., New York.

World's Fair Exhibitors ATTENTION.

Do you desire the services of a reliable company to receive, install and superintend your exhibit during the **World's Columbian Exposition?** We can save you money. Unexceptional references. Write for pamphlet and particulars.

CHICAGO COMMERCIAL COMPANY
501, 502, 503 Home Insurance Bldg., Chicago.

Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

To Tube and Pipe Manufacturers and Capitalists.

The undersigned has invented machines and processes for making seamless tubes directly from molten steel, glass or fusible material of any kind. Has also invented machines and processes for making seamless tubes from billets or bars of steel or other granular metal. The machines, full working size, are all built, but the owner having insufficient means to complete the experiments in testing them, the cost of which ought not now to be large, desires the co-operation of some one who is looking for a chance to make money. Expert examination and investigation will prove the legitimacy and extensive value of the enterprise. I will treat only with principals who send me their full address and references as to financial standing. Address

"V. B.," care Carrier 24, Boston, Mass.

FOR SALE CHEAP.

Sheet Iron Mill, located in the Natural Gas Belt. Mill now running. Gas is assured for a long period

Address

"W.,"

care of National City Bank, Cleveland, O.

FOR SALE.

at Rye, N. Y.

The stock, tools and buildings of a hardware, house-furnishing, tinning and plumbing business. To the right parties this is a chance seldom offered; sickness of owner reason for selling. Inquire on premises or of

GEORGE HOWARD,
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2D-HAND RAILS FOR SALE.

1000 tons Steel Rails, 60 lb. section, in first-class condition.

WM. H. PERRY & CO.,
Providence, R. I.

CONTRACTS WANTED.

A high class machine shop having surplus equipment solicits contracts for medium or high class work. Switch into shop, traveling cranes, best shipping facilities. Location, Ohio. Address

"W. A. H.,"

office of *The Iron Age*, cor. 4th and Main Sts., Cincinnati, O.

We have in stock several sizes of
UNIVERSAL RADIAL

DRILLING MACHINES

Price $450 up,
That we wish to dispose of. Address

UNIVERSAL RADIAL DRILL CO.,
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FOR SALE.

A fully equipped Machine Shop in Chicago, with a good business. Ground and building, or so much as may be required, can be leased if desired on favorable terms. Address

"MACHINE SHOP,"

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WE BUY OLD DYNAMOS and ELECTRIC SUPPLIES OF GOOD SYSTEMS. MAKE SPECIALTY OF RE-AIRING

And offer as a consequence the best and cheapest machines in the market. By long experience in rebuilding old dynamos, we have learned of their faults, and can improve them; and it is known that old dynamos made new are better than new machines.

THOS. YEARSLEY,
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WANTED.

300 feet of bridge in 2, 3, 4 or 5 spans. Must be in good order and built to carry engine weighing 40 tons on 12 foot wheel base and train of 60,000 lbs. loaded Gondola cars.

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A Tack and Small Nail Factory, consisting of ten Reed Machines with automatic feeders; six Blanchards; two Wire Nail Machines, one large, one small; two Double-Point Tack Machines; one Glazier-Point Machine; one Heel Nail Machine; one Chopper, 30-inch knives; one Slitter; two Tumblers; two Grindstones; Engine Lathe, 15-inch swing; Drill Press, 20-in. swing. Also all shafting, pulleys, belting and necessary appliances for running the plant. Located within 100 yards of a rolling mill that will furnish material very low. This machinery is practically new. Patterns for each machine. The whole will be sold at a very low price.

THE STANLEY TACK WORKS,
Belleville, Ill.

FOR SALE.

Large Architectural Iron Works plant in Chicago, centrally located and suitable for general foundry and machine shop or other manufacturing purposes. Address

"J. G.," Box 69,

office of *The Iron Age*, 96-102 Reade St., N. Y.

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100 tons of Floor Plates, good and strong; sizes 2 x 4 and 2 x 6 feet, 1 inch thick. New; never been used. Made of best foundry iron; no cheap scrap. For prices, address

"FLOOR PLATES,"

office of *The Iron Age*, 96-102 Reade St., N. Y.

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To exchange stock in an Electric Light Company, now running, with a good trade, for one 24 inch swing or larger lathe, new or second-hand, in good condition, to take in about 8 or 10 feet between centres. Address "ELECTRIC," office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

One new or second-hand Crane of about 3 or 4 tons capacity, iron or wood frame. Must be in good condition. Size of mast 20 feet. Size of jib 20 feet. Price must be low if purchased. Address

"CRANE," No. 69,

office of *The Iron Age*, 96-102 Reade St., N. Y.

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Attention, Contractors and Builders.

We are prepared to furnish on short notice Steel Rails cut to any length.

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CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.

Send for Catalogue.

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HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

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Bureau of Inspection, Tests and Consultation.

Rails, Splices and Cars. Analytical and Physical Laboratories. Examination of Iron and Steel Works and advice on Processes.

General Office: The Rookery, Chicago. Branch Offices: Hamilton Building Pittsburgh; 328 Chestnut St., Philadelphia 80 Broadway New York.

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JUST PUBLISHED.

PRICE $1.00, POSTPAID.

This novel book is the only book ever written especially for Hardware men, and every Hardware Merchant will find it of decided help and of intrinsic value. It tells **How to Advertise** a Hardware Store. **How to Dress** a Hardware Store Window. **How to Select** Seasonable Goods and **How to Display** them to best Advantage. **How to Make** a Success with Hardware. **How to Compete** with "Department Stores." **How to Turn** a Credit Business into a Cash Business. **How to Avoid** Bad Debts and Increase Trade. **How to Secure** Low Quotations from Jobbers and Manufacturers. **How to Arrange** the Fixtures in a Hardware Store. **How to Treat** and Manage Clerks. **How to Keep** your Accounts with the least labor. **How to Systematize** your business and arrange its Details. **How to Arrange** Price-Lists. **How to Meet** close Competitors and **How to be Enterprising. How to Properly** proportion Store Expenses, and thousands of practical hints for Hardware Merchants.

"Ideas for Hardware Merchants"
Sent postpaid upon receipt of price.

D. T. MALLETT,
P. O. Box 108, New Haven, Conn.

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Old Reliable

HARDWARE PRICE BOOKS.

Send for new Illustrated Circular.

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PORTLAND, OREGON

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ILLINOIS FLUOR-SPAR & LEAD CO.

SUCCESSORS TO

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FLUOR-SPAR AND LEAD MINING CO.,

57 Board of Trade Building, Chicago, Ill.

This Company owns, at Mineral City, on the Ohio River, the largest Mines of Fluor-Spar ever discovered.

We are working a large force of miners; our new mills and tram railway are running, and we are now prepared to furnish the purest Fluor-Spar in any quantities to Iron and Steel Manufacturers, to Smelters of Gold, Silver and Copper, and to Paint, Paper and Glass Makers.

Fluor-Spar is pronounced the most powerful of fluxes; it facilitates the reduction of the most refractory materials. For Alkalies, Clays and all Metallic Oxides it has a remarkable solvent power; it reduces the melting point and saves fuel; it diminishes the loss of metal, saves labor and keeps the cupola clean; reacts strongly upon scaffolds and cloggings.

One part of Fluor-Spar is more effective than ten parts of Limestone. Limestone is an enemy to iron; Fluor-Spar is a friend.

Directions for the proper use of Fluor-Spar given our patrons.

We ship Lump, Gravel, Crushed and Ground, in bulk or barrel.

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Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

BY THOROUGHLY COMPETENT open-hearth Melter; five years' practical experience; desires to correspond with parties wishing to engage a capable man. Address "P. M.," office of *The Iron Age*, Room 509, Hamilton Building, Pittsburgh, Pa.

I AM 29 years of age, married; have been ten years with present employers (wholesale hardware), four years as head bookkeeper; have first-class references and would like situation where a good business training will be of service. Address FRED. H. ROSS, 97 Erie avenue, Hamilton, Canada

SITUATION as Correspondent or Salesman by a young man of extensive experience with railway and plumbers' supplies, and two years with machine tools; has been correspondent and assistant to manager in some of the largest houses in the West. Address "S. M.," Box 69, office of *The Iron Age*, 96-102 Reade street, New York.

AS SUPERINTENDENT of an iron or steel mill; have had over 20 years' experience in erecting and operating both; can furnish very best of references as to ability to plan, erect and operate; would accept position as assistant superintendent in large mill. Address "DRAKE," office of *The Iron Age*, 96-102 Reade street, New York.

POSITION with wholesale Hardware house; young man who has had experience in the business and can furnish A1 reference. Address "HONEST," Box 69, office of *The Iron Age*, 96-102 Reade street, New York.

A COMPETENT Patent Solicitor and searcher in testing validity of patents offers his services to a substantial firm or corporation, preferably in New York City, to attend to their patent affairs and, as time permitted, to otherwise confidentially assist in business management. Address GOODWIN, office of *The Iron Age*, 96-102 Reade street, New York.

AN AMERICAN GENTLEMAN, who will reside in the principal European cities, after July 15th, for the period of one year or ten, desires to act as agent for the sale of American products; the best of American references as to financial responsibility, character and ability will be furnished. Address "EUROPEAN," Box 69, office of *The Iron Age*, 96-102 Reade St., New York.

A STEEL SALESMAN, now employed, wishes to change July 1. Ten years' experience on the road selling tool and machinery steel, forgings and castings in New England and Middle States; good address; good habits; total abstainer; thoroughly acquainted with the trade; good references. Address "TRAVELING SALESMAN," office of *The Iron Age*, 96-102 Reade street, New York.

BY A MAN having thorough knowledge of the tube business, with a large experience in management of mills making highest grades of boiler tubes and pipe; also in designing, constructing and operating gas, oil or coal furnaces; also has experience in management of rolling mills; references. Address "TUBES," office of *The Iron Age*, Room 509, Hamilton Building, Pittsburgh, Pa.

STEEL SALESMAN; a gentleman who has had 15 years' experience in the manufacture of crucible, Bessemer and open-hearth steels, also special steels, and who is thoroughly familiar with the needs of consumers, would like an engagement with manufacturing or mercantile firm as salesman; has not occupied position as salesman. Address "STEEL EXPERT," office of *The Iron Age*, 96-102 Reade street, New York.

MECHANICAL ENGINEER, graduate, 31 years, with 9 years' practical experience, mainly in marine engineering in all its details, wants position; speaks French. Address R. BERGGREN, 423 Trenton avenue, Camden, N. J

BY A THOROUGHLY practical mechanic, as Superintendent of hardware or light machine work. Am familiar with all the details in each department, have had a long experience in handling men, keeping costs, making estimates, &c., on special work. A1 references. Address "DETAILS," Box 536, office of *The Iron Age*, 96 to 102 Reade St., New York.

BY A MECHANICAL Engineer and machinist has had charge of work for 15 years past; had experience with wire rope traction, engine, pump and general machine work, including experimental and model work, drawing, designing &c.; Brooklyn or New York preferred "H.L." Box 69 office of *The Iron Age*, 96-102 Reade St., New York.

A SITUATION in a hardware store either in the house or on the road; 18 years' experience; acquainted in Ohio, Indiana, Illinois and Kentucky with the hardware, iron, tinners' stock and carriage trade. Address "HARDWARE SALESMAN," office of *The Iron Age*, 4th and Main Sts., Cincinnati, O.

MACHINERY SALESMAN, thoroughly practical, wants position; reference as to character and ability. Address "C.," Room 27, 111 Broadway, N. Y.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as manager, superintendent or assistant of manufacturing establishment. Address "MULLACH," Box 33, office of *The Iron Age*, 96-102 Reade Street, New York.

AS SUPERINTENDENT of Wire Mill; all latest methods of handling the following thoroughly understood: galvanizing wire, cloth and netting, brass, copper, iron and steel of every description, crucible and spring steel a specialty; every detail of wire nail business; mills failing to pay preferred; can build mills from foundation; unexceptionable testimonials furnished. Address "WIRE," office of *The Iron Age* 59 Dearborn St. Chicago.

A YOUNG MAN of good habits and 15 years' experience in the rod mill business is open for engagement; best of references furnished and especially in copper. Address "ENGAGEMENT," 526, office of *The Iron Age*, 96-102 Reade St., New York.

BY AN ACTIVE middle aged man as superintendent or sales agent; have been superintendent in a large architectural iron, fence and jail works for ten years; have 30 years' experience in wrought iron and foundry work. Address "LONG EXPERIENCE," office of *The Iron Age*, 96-102 Reade St., New York.

TO REPRESENT in the State of Texas manufacturers of hardware, &c., by a man with 15 years' experience and favorably known to the trade throughout the State; office and sample room at San Antonio, Texas. Address "TEXAS HARDWARE," office of *The Iron Age*, 96-102 Reade Street, N. Y.

BY A THOROUGH practical rolling mill Manager for iron and steel products; can make high grades of either; can utilize old rails or scrap to advantage; is highly endorsed by late employers and A1 references for ability, sobriety and integrity. Address "V. IRON AND STEEL," P. O. Box 523, Pittsburgh, Pa.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

A WESTERN TRAVELER, familiar with builders' hardware and fully "up" on Locks, not less than 30 years old and having first-class references as to ability and experience in marketing such goods, can secure a connection with an old established factory by addressing "WORKS," office of *The Iron Age*, 96-102 Reade street, New York.

AN ENERGETIC young man wanted as traveling salesman for the State of New York; must be thoroughly familiar with builders' hardware particularly and willing to "hustle" in order to achieve success. Address "BANG," Box 62, office of *The Iron Age*, 96-102 Reade St., New York.

SALESMAN visiting retail hardware trade in Maryland, Virginia, North and South Carolina and Georgia to take as side line on commission, first-class staple article, largely in use; experienced hardware salesmen can make good pay; first-class men only need apply. Address, with full name and references, "GOOD LINE," Box 62, office of *The Iron Age*, 96-102 Reade St., New York.

FIRST-CLASS Salesman acquainted with the hardware, grocery and woodenware jobbing trade and large buyers in general stores, to sell a line of specialties; must furnish first-class references; state experience and salary required "SALESMAN," office of *The Iron Age*, 59 Dearborn St., Chicago.

SALESMEN visiting hardware and house-furnishing trade, to introduce rapid selling novelty in cooking utensils, on a commission; experience and references required. TRUMBULL SPECIALTY CO., Warren, Ohio.

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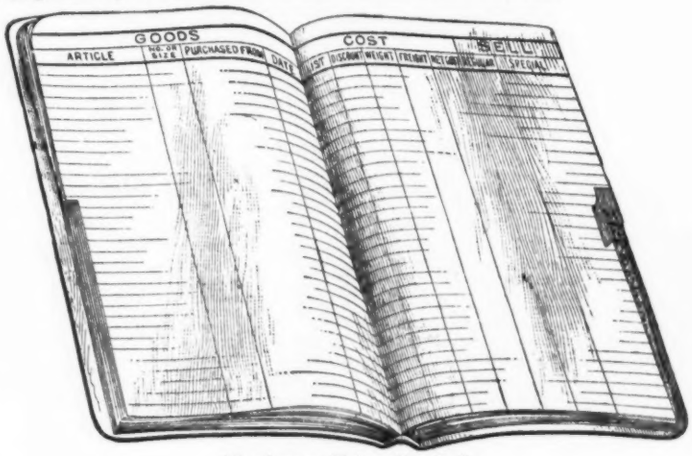

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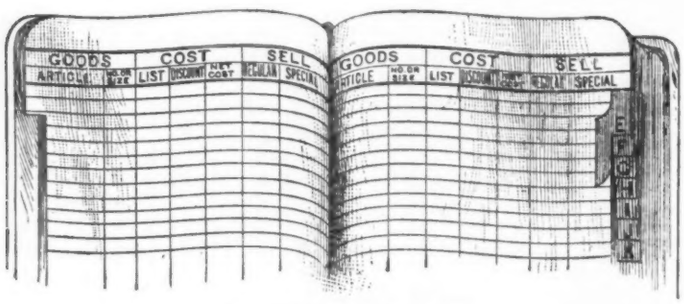

Hardware Price Book B.

In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

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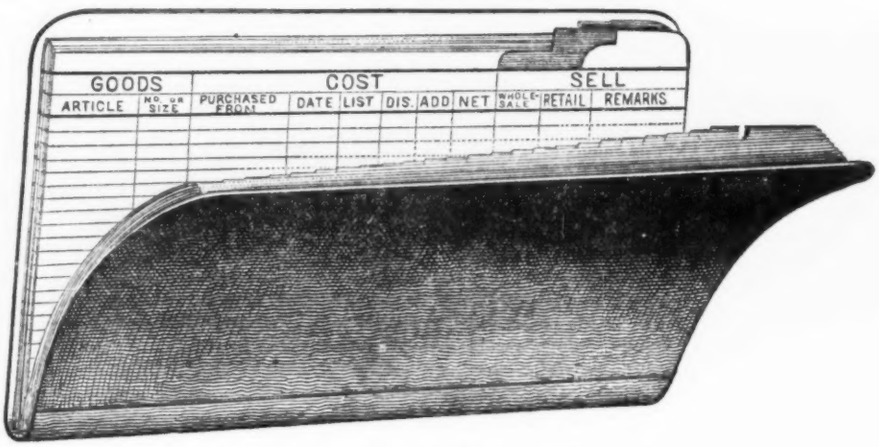

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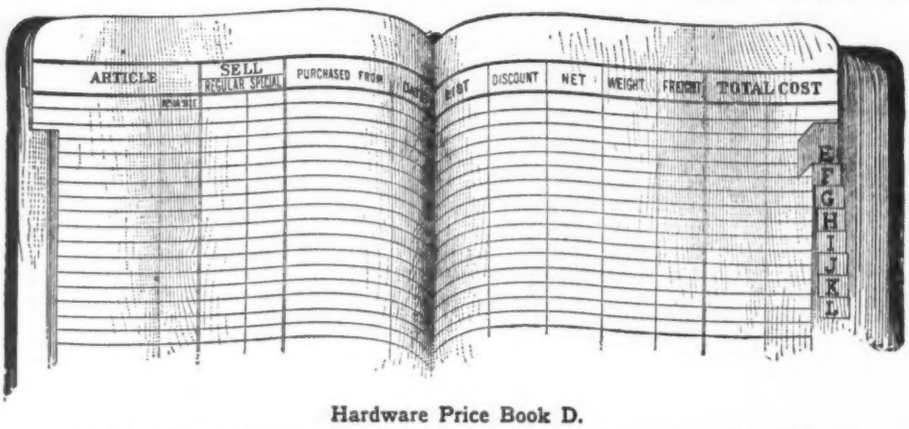

Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction.

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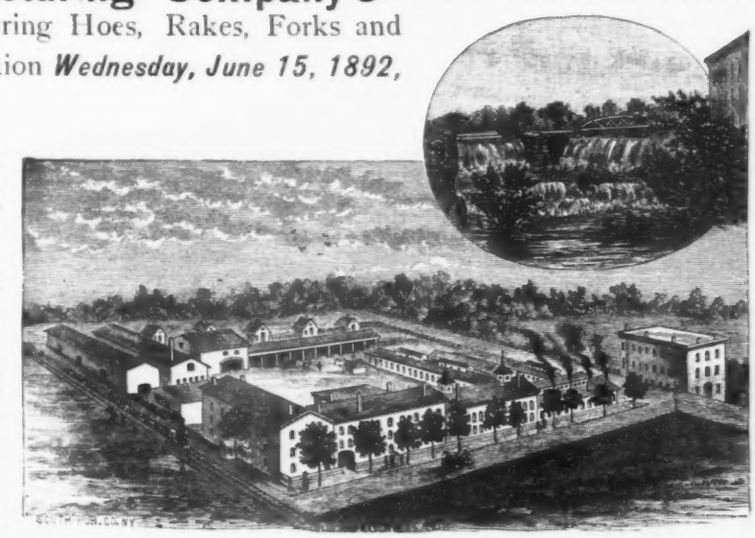

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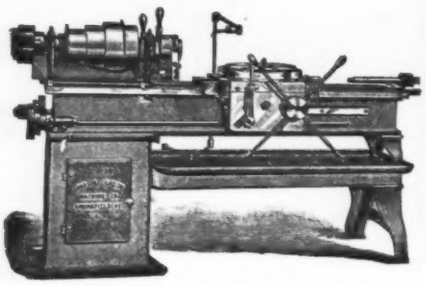

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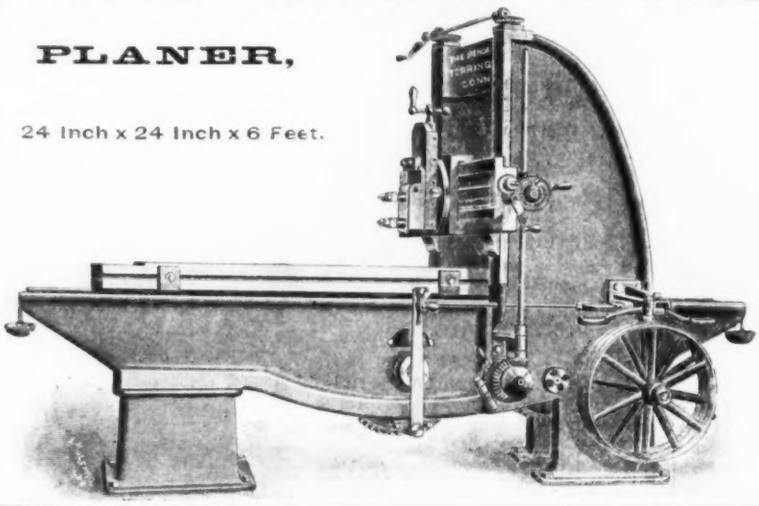

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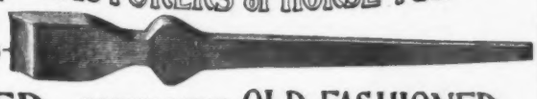

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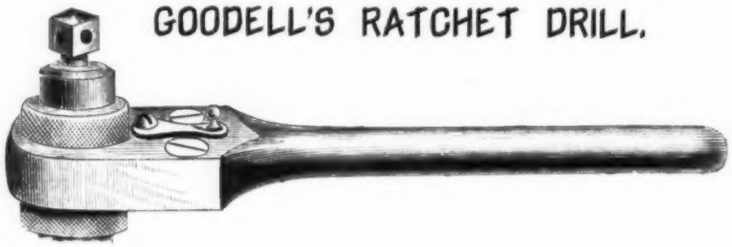

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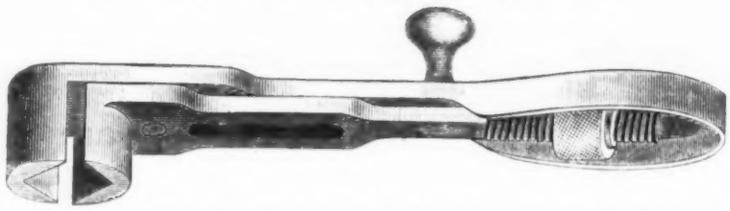

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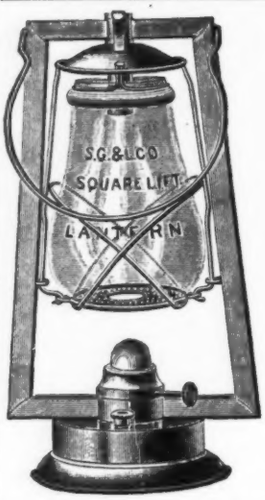

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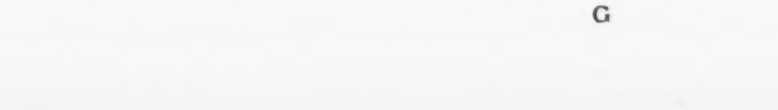

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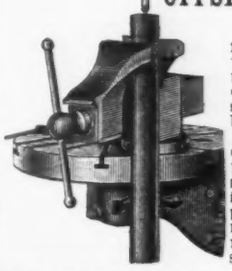

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Fig. 120.

Fig. 70.

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Fig. 209.

Fig. 381

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TRADE MARK. A complete outfit. Easy to put up, always reliable and fully warranted to meet the wants of any farmer.

MYERS' FORCE AND LIFT PUMPS

Simple, durable, powerful, easy to operate never affected by frost. **Patent GLASS VALVE.** will never corrode. Ask your dealer for our goods. Write for catalogue.

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1. The greatest strength and durability attainable. 2. Entire glass exposed to view. Most convenient level made. 3. The only level really adapted to the rough use of masons. 4. Absolutely accurate and finely finished. Send for Circulars and Price-lists. **AKRON SPIRIT LEVEL CO., AKRON, OHIO.**

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WITH OR WITHOUT AGITATOR.

"EUREKA" NOZZLES, "VERMOREL" NOZZLES, ETC.

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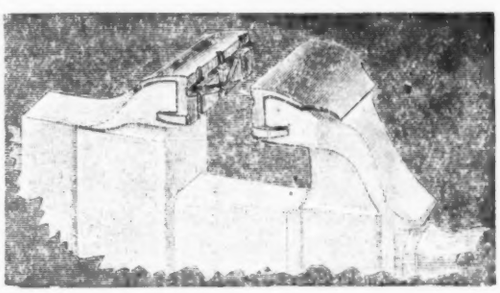

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Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

3⅛ inch, ...	per pair,	40 cents.
4 "	" "	50 "
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SO SIMPLE A CHILD CAN USE IT.

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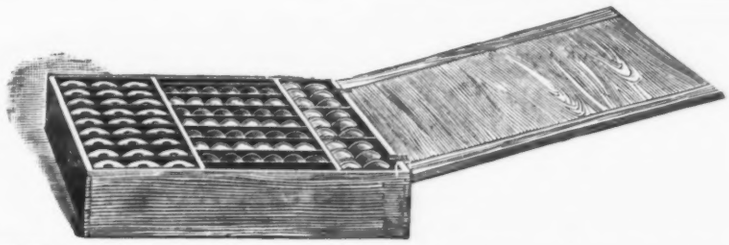

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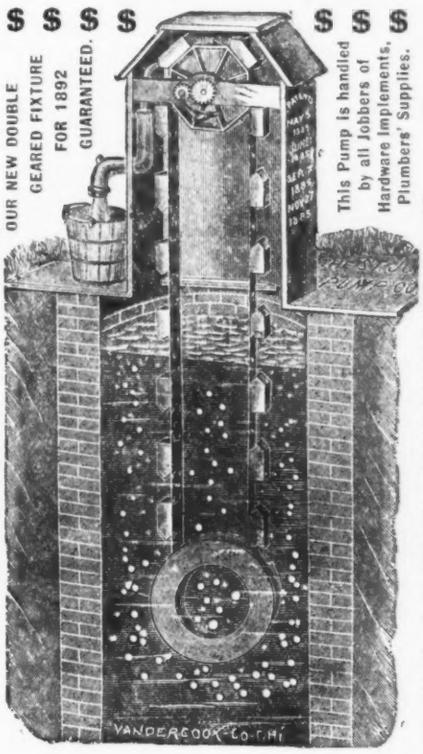

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THEIR MAKE IS EQUAL IF NOT SUPERIOR TO ANY OTHER.

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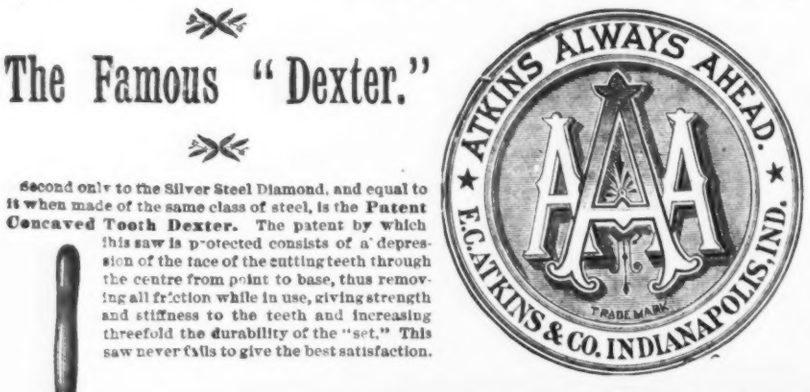
Second only to the Silver Steel Diamond, and equal to it when made of the same class of steel, is the **Patent Concaved Tooth Dexter.** The patent by which this saw is protected consists of a depression of the face of the cutting teeth through the centre from point to base, thus removing all friction while in use, giving strength and stiffness to the teeth and increasing threefold the durability of the "set." This saw never fails to give the best satisfaction.



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Are Everywhere Recognized as the

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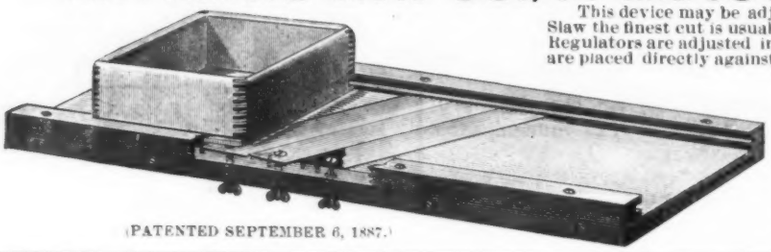

(PATENTED SEPTEMBER 6, 1887.)

This device may be adjusted to cut fine or coarse, as desired. For cutting Slaw the finest cut is usually the most desirable. To make the finest cut the Wire Regulators are adjusted in line with the Cutter, or in other words, these wires are placed directly against the back edge of the Cutters. To make the coarsest cut, the Regulators are turned until the leg comes against the side strip. If a medium cut is desired, the regulators are turned half way around: thus the desired cut may be obtained by the position of the Regulators. To change the position of the regulators, the bolts passing through the blades are first loosened, the regulators turned to the desired position and the bolts again tightened. To sharpen the blades, take out the retaining bolts, when the blades may be removed; after sharpening, the bolts are replaced, the Regulators adjusted to the desired cut and the bolts tightened.

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THE SIMONDS CRESCENT-GROUND

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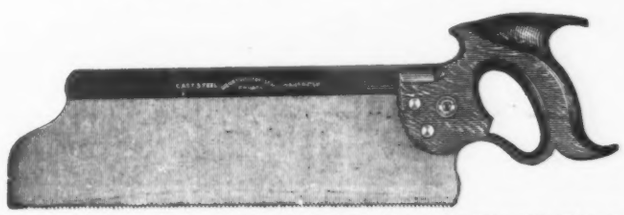

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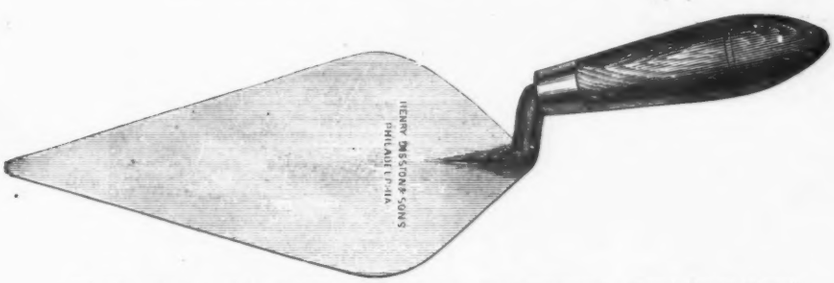

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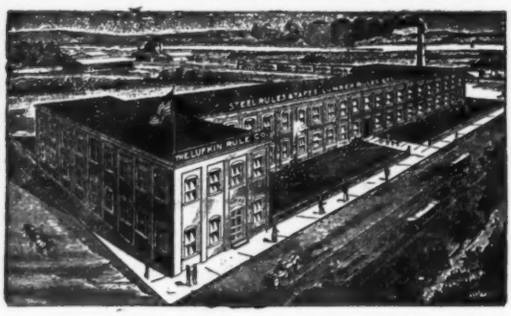
For Sale by Dealers and Saw Mill Builders.



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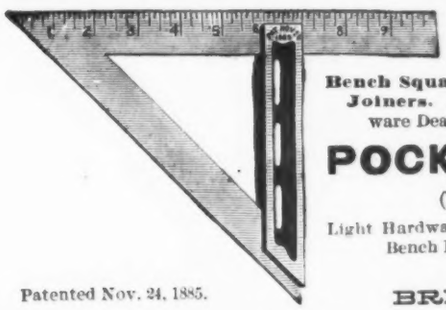

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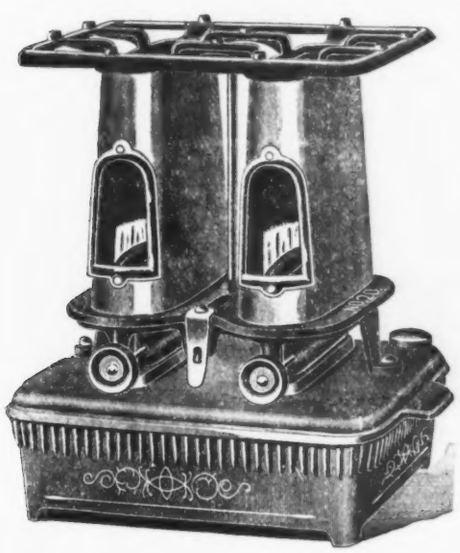

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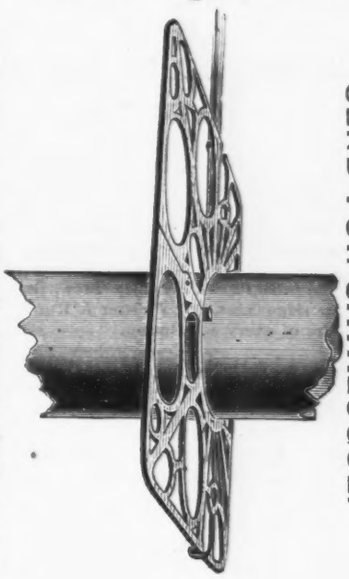

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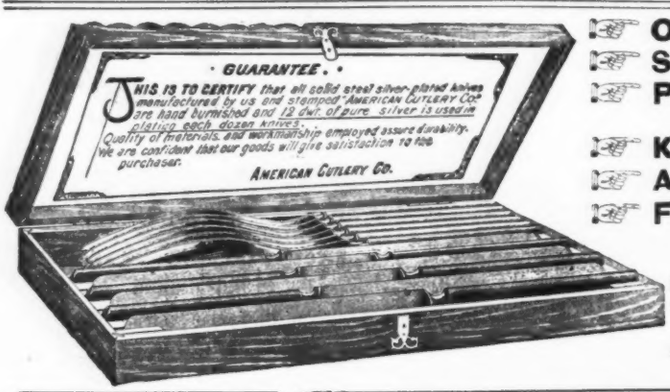

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KNIVES HAVE BECOME THE BEST SELLERS,
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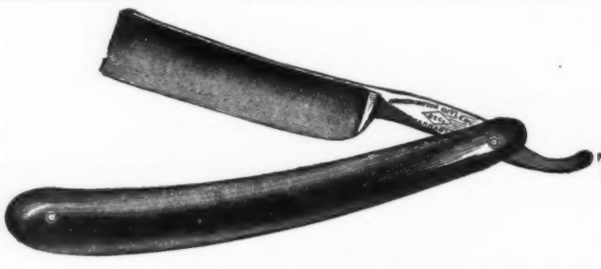

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We issue semi-annual catalogues of seasonable goods.

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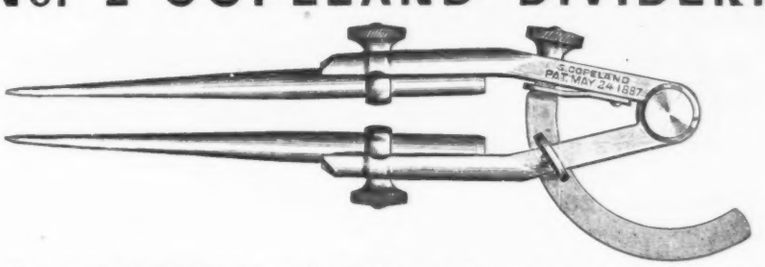

The above cut represents our No. 2 Divider, in 6", 7", 8", 10" and 15", in which a common pencil can be used in place of movable points.

☞ The 6" by adjustment of points becomes 7", the 7" and 8" become 8" and 9", and will scribe same size circle as No. 1 of corresponding size. The 10" by adjustment becomes 12" and will scribe 35" circle. and the 15" will scribe 52" circle.

Size,	6	7	8	10	15 inch.
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Extra for Nickeling, $2.00 per doz

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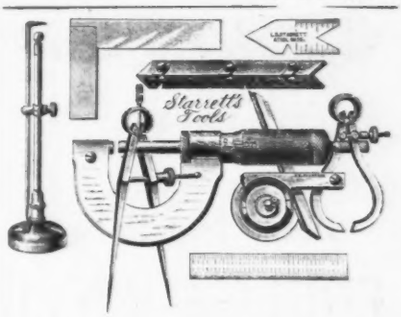

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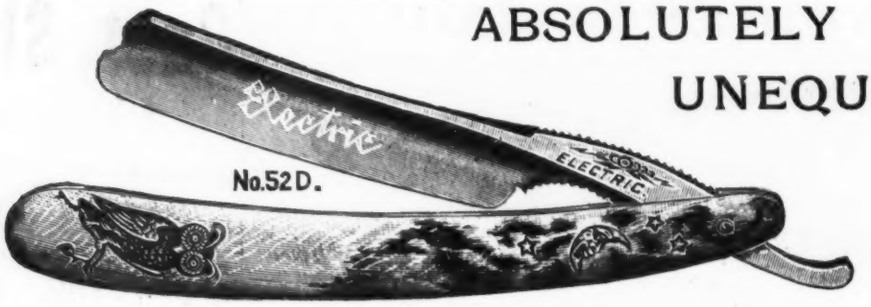

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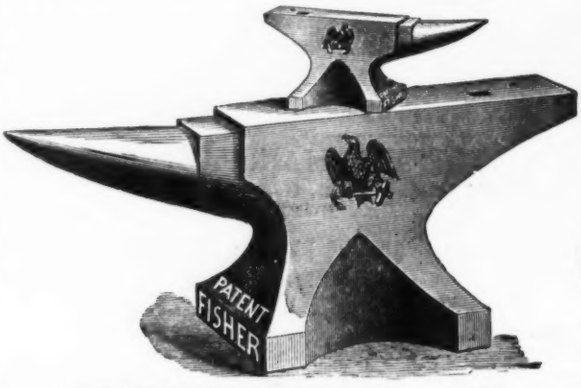

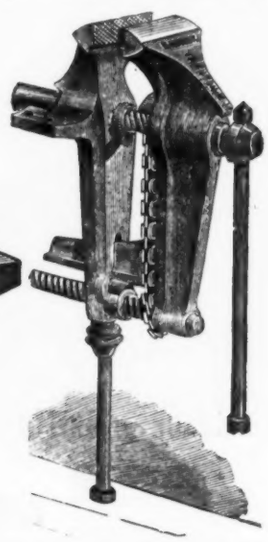

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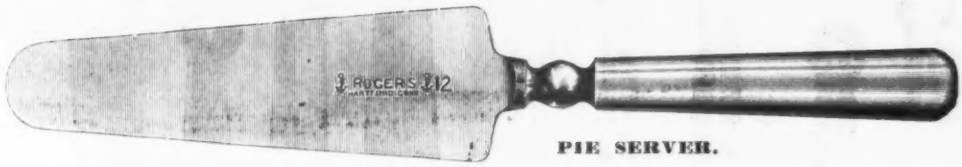

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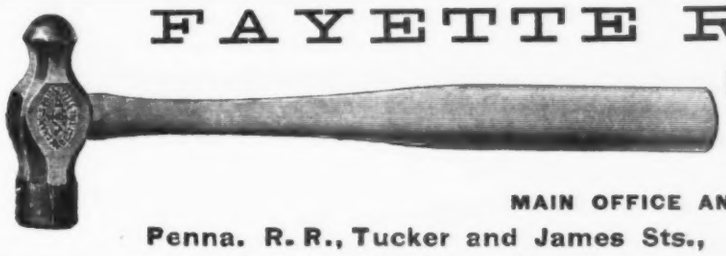

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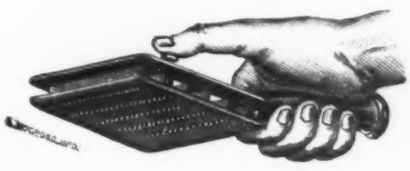

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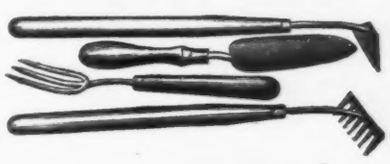

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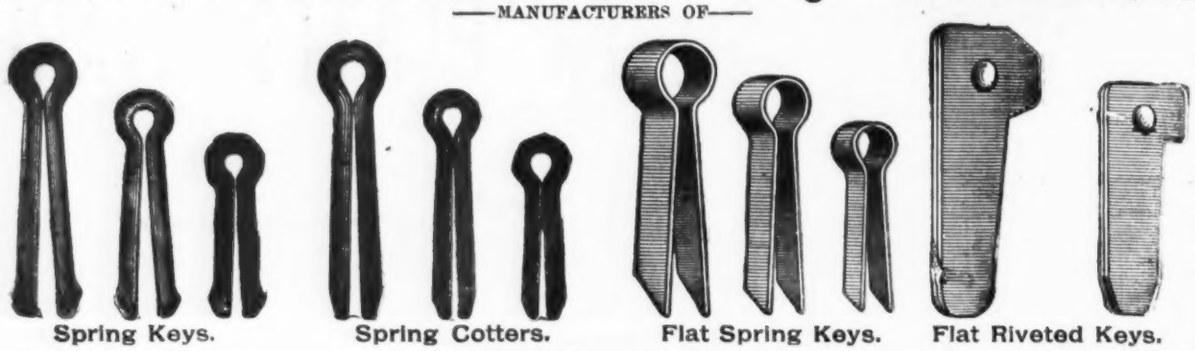

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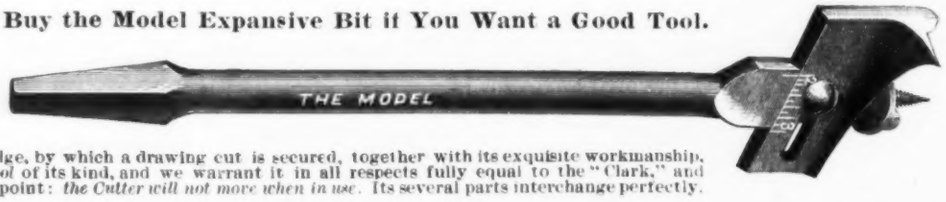

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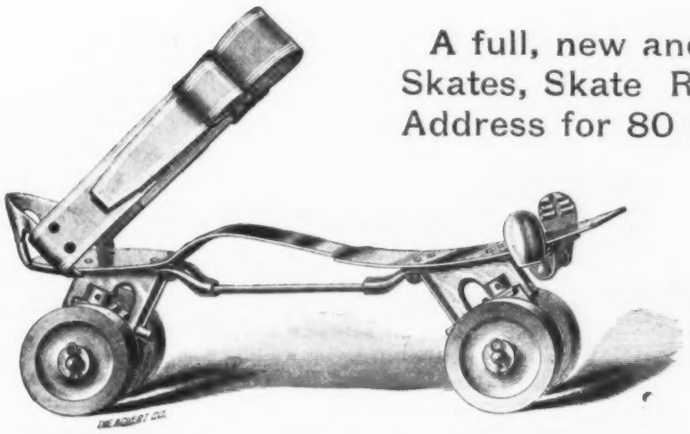

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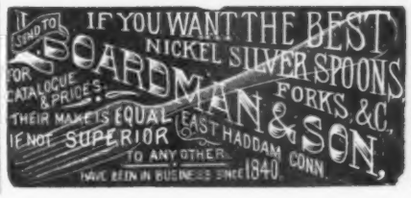

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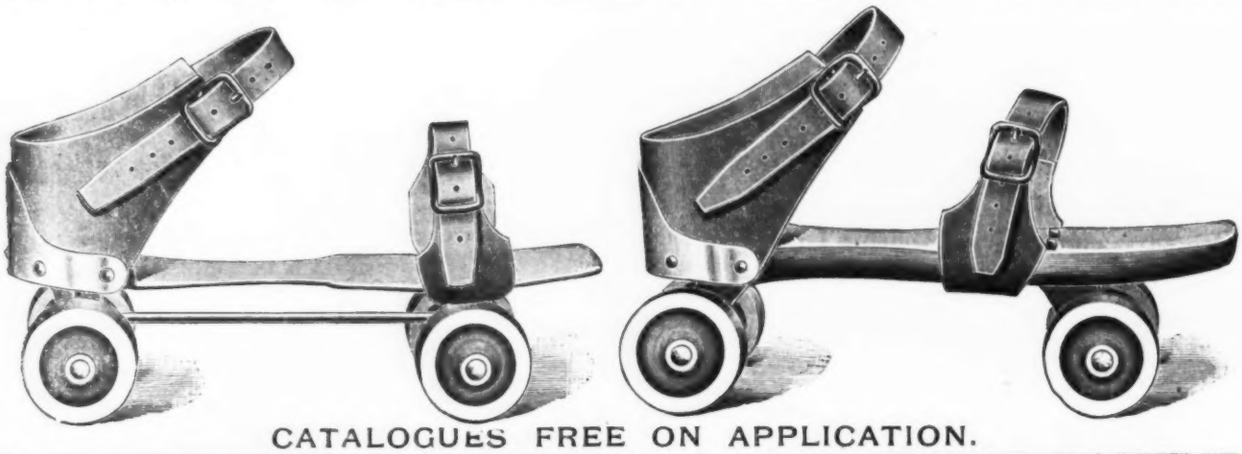

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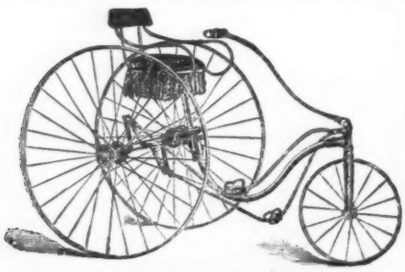

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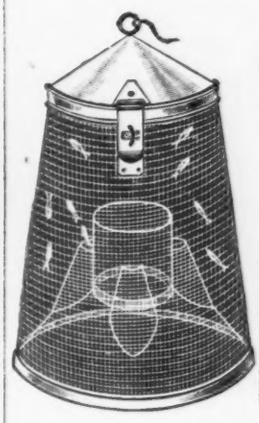

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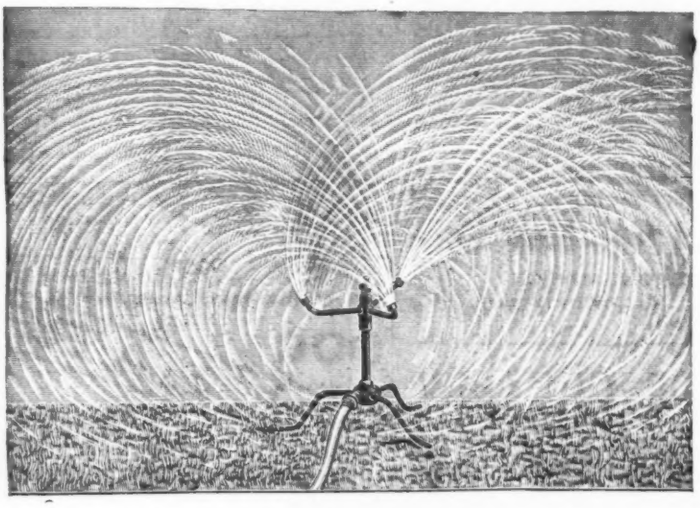

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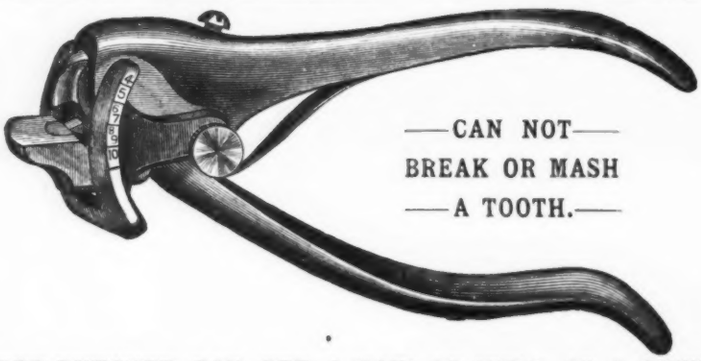

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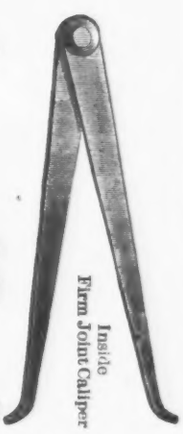

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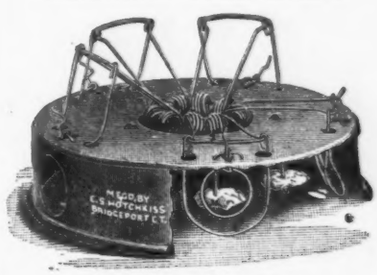

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Patented March 31, 1891.

Mouse Traps, Horse and Barbers' Clippers, Curry Combs, Rat Traps, Wrenches, Lemon Squeezers.

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COMMON MOUSE TRAPS BEST FOR USE!

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COLD HANDLE
Wrought Steel Spiders
WITHOUT RIVETS.

The handle is made round, fits the hand perfectly and is ALWAYS COOL. The **"NEVER-BREAK"** Spider is the ONLY Wrought Steel Spider manufactured WITHOUT RIVETS complete from ONE PIECE OF METAL.

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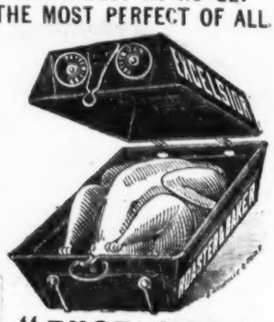

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7 SIZES
MADE OF
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AMERICAN KNIFE SHARPENER
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Will just suit your trade. They are strong, neat, easy to work and do their grinding rapidly. They are the peers of any Coffee Mill on the market. We solicit a trial.

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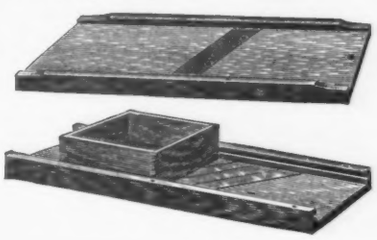

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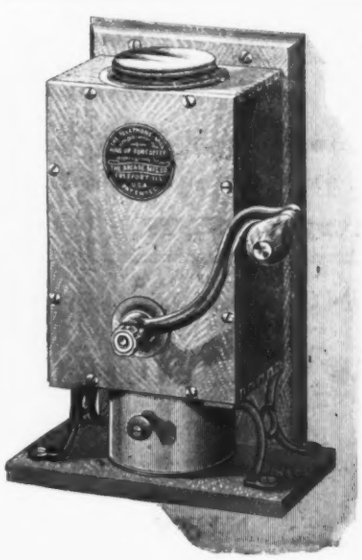

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The "TELEPHONE MILL," for grinding Coffee or Spices, is made of hard wood, highly finished and nickel trimmed. The only boxed mill which can be fastened on table, shelf or wall—holds a pound of coffee—self-feeding, and easily regulated to pulverize.

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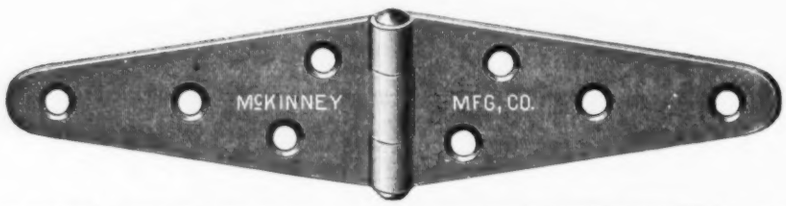

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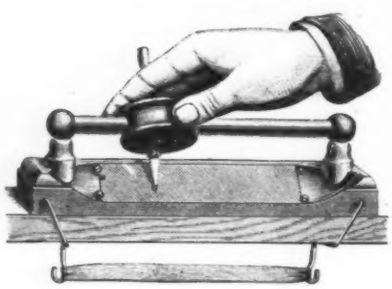

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THE PERFECT PENCIL POINTER.

Will save about one-half your pencil bill.
It is a practical machine, not a toy.
The only "Perfect" machine for the purpose
Does better work than can be done in any other way.
Does not break or waste the lead. Saves time.
Prevents soiling the hands. Any one can use it.

The above cut shows the Pointer attached to the edge of a table and shows how to take hold of the carriage in using. The pencil revolves as it is moved along on the surface of a file, which is especially made for the purpose. The entire simplicity of the whole machine makes it little liable to get out of order. By use of the clamps it can be instantly attached to desk or table, and as quickly removed, or can be used when held in the hand. The material and workmanship are the best and **EVERY MACHINE FULLY WARRANTED.**

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This is the best thing of the kind I ever saw. One cannot break the lead while sharpening.

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Your Perfect Pencil Pointer came to hand, and after a thorough trial proves to us that it is rightly named for it is "perfect" in every particular. We would not be without it for double the price.

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WILL PARE APPLES OF ANY SIZE OR SHAPE.

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DUPLEX JOIST HANGER

Abolish the Ancient Mortise and Tenon and use the Duplex Joist Hanger.

GIVES DOUBLE THE STRENGTH.

—AND—

SAVES MONEY, TIME AND LABOR.

Only 7 sizes used to fit any sized Joists. Write for prices and information.

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The best meeting Rail Sash Lock on the market.

WRITE US FOR PRICES.

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Manufacturers of **Sash Balances, Sash Locks, Sash Lifts, Monitor Sad Irons.**

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FOR SPEAKING TUBES. ALWAYS READY FOR USE.

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ESTABLISHED 1845.

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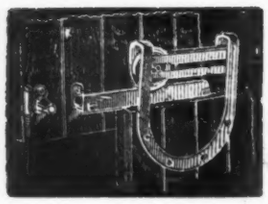

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The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

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With freights in our favor and a line of Builders' Hardware unsurpassed for quality, finish and design we are in position to offer special inducements. Try us.

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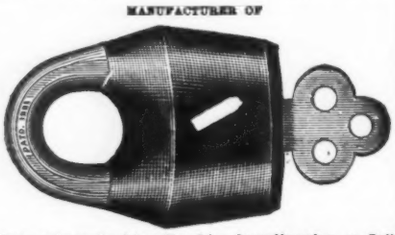

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Unpickable Flat Bronze Spring Padlock,

Most secure, and finely finished Padlock made, and of Lancaster Drive Sash-Pulleys, best and cheapest Sash-Pulleys on the market.

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to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

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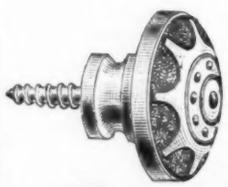
We make a full line of Shutter Knobs



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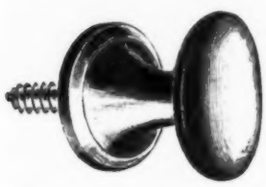

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PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes; ¾ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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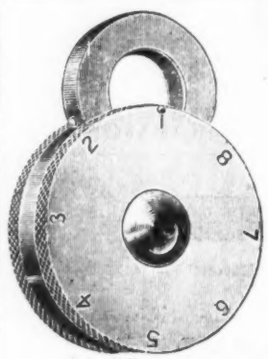
Send for Price Lists and Circulars.



IF COMBINATION LOCKS

ARE NECESSARY ON YOUR

SAFES AND VAULTS,

WHY NOT PROTECT YOUR

HOUSE DOORS

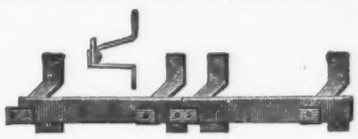
and all other places containing valuables with them? We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

THE CANTON COMBINATION LOCK CO., CANTON, O.

VICTOR MFG. CO., Newburyport, Mass.

Showing one-half set of hangers attached to door.

STEEL RAIL.



The Only Bracing Bracket Made.

PRICE-LIST.

HANGERS.	Per Doz. prs.
No. 5, to run 6 feet, 3⅛ in. wheel,	$10.00
No. 6, to run 10 feet, 4¼ in. wheel,	15.00
No. 7, to run 15 feet, 5½ in. wheel,	22.00
RAIL, per foot	6½ cents.

The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

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HILLEBRAND & WOLF,

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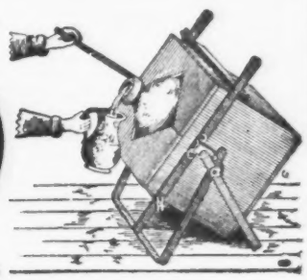
SCANDINAVIAN AND SPRING PADLOCKS

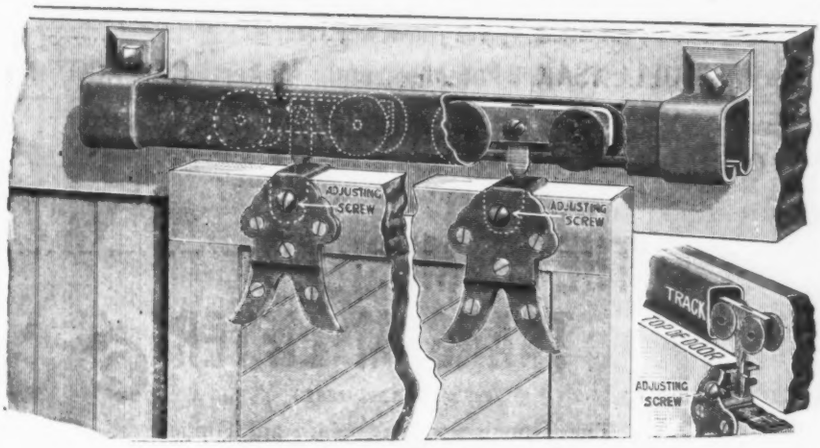
TRUNK & CASE LOCKS

CARBOY STANDS, &C.

CATALOGUES SENT ON APPLICATION.



SHUT THAT DOOR. I CAN'T.

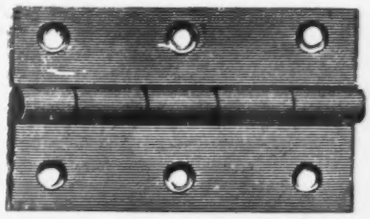


THIS IS CUT OF BARN DOOR.

It's warped. You should have hung it on a Coburn Hanger. The warping of a door does not affect the running of the door on the track. No snow or ice can get into the track to block the same. The axle bearings are self lubricating. I'ts the only covered adjustable track on earth. Write for prices.

THE COBURN TROLLEY TRACK MFG. CO., Sole Makers

HOLYOKE, MASS.



Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

Nos. 16 & 18 Chambers Street, New York.

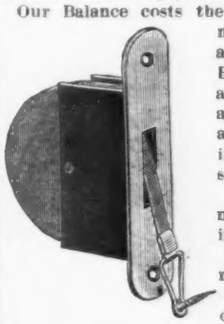
MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY HARDWARE.

A Pronounced Success

BY LEADING ARCHITECTS.

This is not a Complicated Combination of Steel Ribbon, Pulleys, Attachments and Weights. Our Balance costs the consumer half the money and lasts twice as long. Requires no Box Frames. Can be applied to old as well as new windows, exactly counterbalancing the weight of the sash.



Steel Frame Aluminum Tape. Practically indestructible.

Every Balance warranted.

Ask for Pullman and don't confuse ours with imitations.

THE PULLMAN SASH BALANCE CO., Rochester, N. Y.

Perfection Sash Balance

Trade-Mark.

The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

Each balance is fully warranted for ten years.

PERFECTION SASH BALANCE CO.,

ROCHESTER, N. Y.

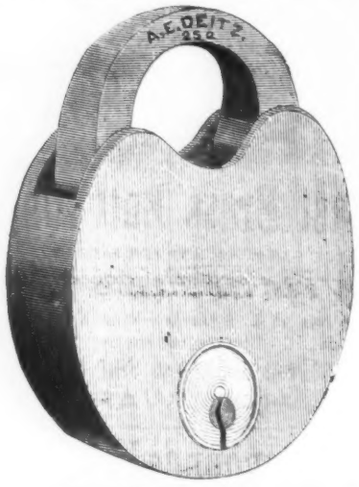
"FISH" SASH LOCK.

Best and cheapest substitute for cords and weights in new or old buildings of moderate cost.

SAMPLES FREE.

J. R. CLANCY, - SYRACUSE, N. Y.

A. E. DEITZ.



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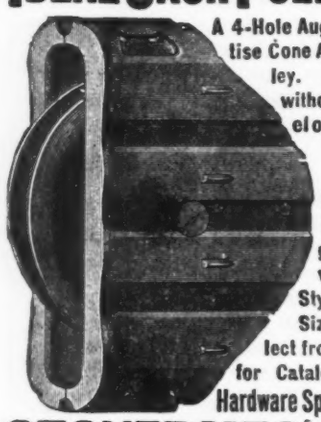
Factory, BROOKLYN, E. D., N. Y.

IDEAL SASH PULLEY.



A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws. Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

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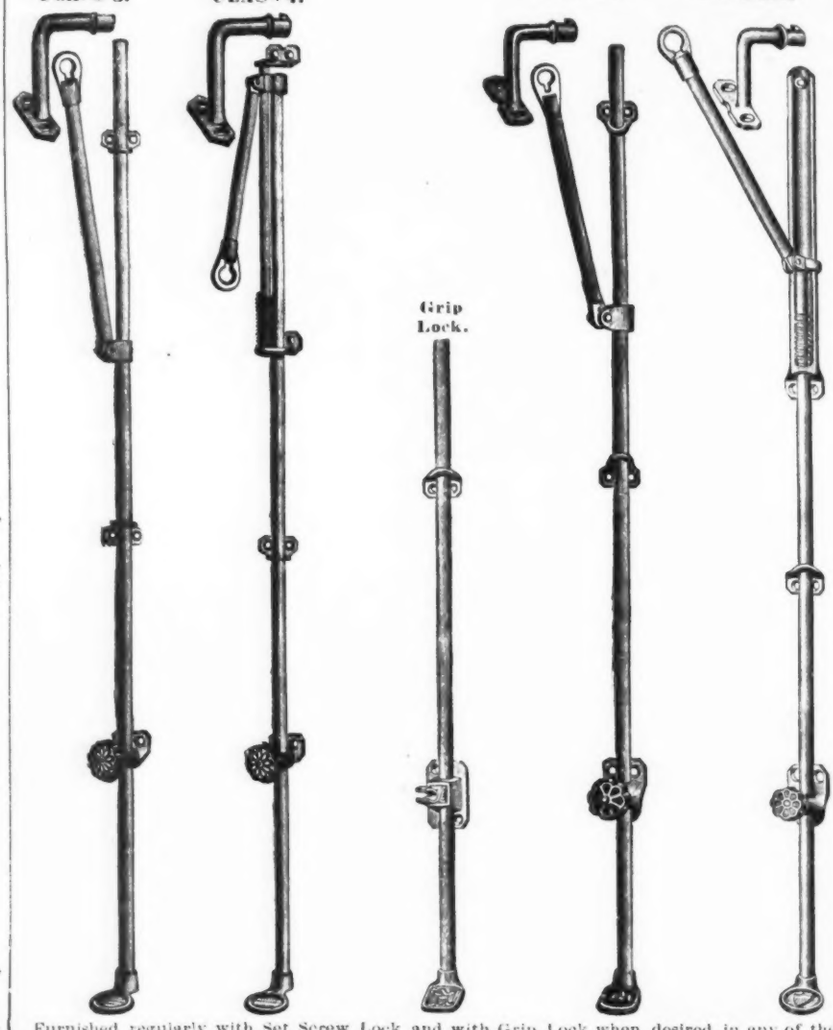
Manufacturer of
STEEL STAMPS
For Every Purpose.
Steel Letters & Figures.
Burning Brands, Stencils, &c. Send for Illustrated Catalogue.

J. F. WOLLENSAK'S PAT. TRANSOM LIFTERS.

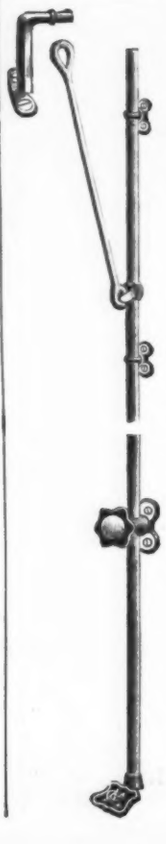
Old Reliable

CLASS 3. CLASS 4. "EAGLE." "SHIELD."



Furnished regularly with Set Screw Lock, and with Grip Lock when desired, in any of the Prevailing Finishes and Metals. FOR PRICES, &C., APPLY TO

I. F. WOLLENSAK, Patentee and Maker, CHICAGO, ILL.



Munger-Colton Mfg. Co.,

Manufacturers of

THE "AMERICA" TRANSOM LIFTER.

(Pat. March 15th, 1892.)

The Thumb Screw Standard and Guides are constructed with **Rotatable Bases.**

These **Revolving** or **Adjustable** Bases enable the Lifter to be secured to any style of moulding or narrow beading (see cut on right) and to either

RIGHT OR LEFT HAND SIDE OF DOOR.

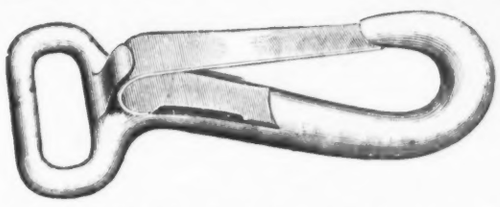
Saves Merchant carrying double stocks.

Send for Illustrated Circular of our full line of Lifters.

H. H. & C. L. MUNGER,
General Agents,
142 Lake St., Chicago.

Shows possible position of rotatable base.

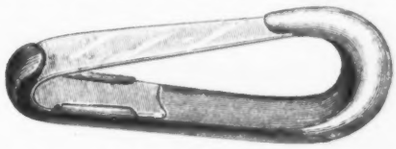
COVERT'S "TRIUMPH" SNAP



Spring used in TRIUMPH SNAP

Takes the lead. Every feature a triumph. No dirt or ice can clog it. It is the most convenient, most durable and the handsomest. Made in all sizes, both loop eye and round eye; also swivel eye and open eye, and double for bit snap, &c. We are Headquarters for Web, Rope and Leather Halters, Horse and Cattle Ties.

TRIUMPH SNAP.



As used for attaching Bit to Bridle or Halter. Has no equal, and the lowest in price.

WE ARE HEADQUARTERS FOR

WAGON JACKS.

Our "Daisy" is the lowest in price and the best Wood Jack. Our "Victor" is the lowest in price and the best Iron Jack on the market.

"Daisy."
Capacity, 1200 lbs.

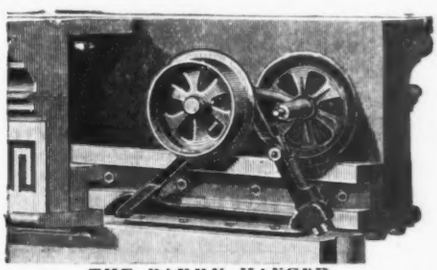
DANDY HAME STRAPS.

"Victor."
Capacity, 1600 lbs.

Send for catalogue illustrating our specialties in Saddlery, Coach and General Hardware.

THE E. COVERT MFG. CO.,

Farmer Village, N. Y., U. S. A.



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CENTRAL CITY BOLT CO.,

Syracuse, N. Y.

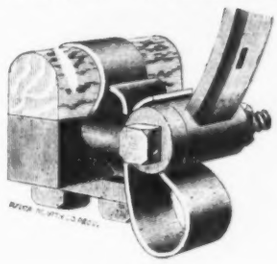
MANUFACTURERS OF

Carriage Bolts and

The Barry Parlor Door Hanger

ADJUSTS ITSELF TO UNEVEN TRACK.

THE THILL COUPLING SPRING



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Is unquestionably the BEST METAL SPRING made for the purpose of preventing the rattling of the Thills.

It is adapted to any coupling where rubbers are used. It does its work perfectly, and is so formed as not to wear the iron of the coupling, as it presents a flat, smooth surface to the bearing, and yet holds the shaft perfectly in place, and prevents all rattling.

It Outlasts many sets of rubbers and costs but a trifle more. It is easily adjusted. Made in four sizes, ⅞, 1, 1⅛ and 1¼ inch. Packed one dozen pairs in a box.

Send for Sample Dozen or Larger Quantities to

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N. Y. Mallet & Handle Works,

MANUFACTURERS OF

MALLETS,

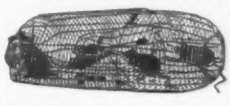
ALSO

Cotton and Bale Hooks.

Patented Feb. 13, 1877, a new combination of Hooks.

456 E. Houston St., New York City.

"MARTY" FRENCH RAT TRAP



catches from *ten to thirty* rats in one night; one man reports *six hundred* in eighteen days; another *eighty* in twenty-four hours. Beware of imitations, get the genuine "*Marty*" trap, see that my name is on each trap before buying. A great seller and pays a good profit. Write for prices to **A. W. PAINE**, 20 Dock Square Boston, Mass.

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READY-MADE SASH CORDS.

BEST AND CHEAPEST.

Save **60 per cent** labor in hanging sashes

LIZZARD HORSE ICE CREEPER.

Any one can put them on or off or put in new calks. Price, $3.00 set of 4, express paid. For single sets send shoe outlines. Worth more than cost for emergencies. Agents wanted. Circulars free.

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Cut One-half Size.

Sample pair sent to any hardware or saddlery firm by addressing

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A. S. HENN & CO.,

Manufacturers of

Hardware Specialties, Can Openers, Pocket Wrenches, Mincing Knives, Clothes Line Pulleys, &c.

Send for Catalogue.

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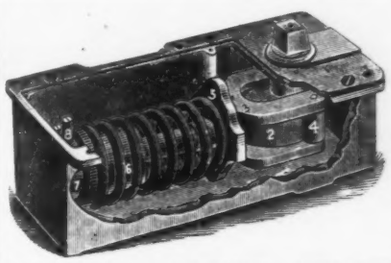

CHECKING SPRING HINGES,

FOR SWING DOORS.

Applied in floor under door. They close the door gently, without noise or violence and stop it at once at the centre. Doors cannot sag, springs do not break or set.

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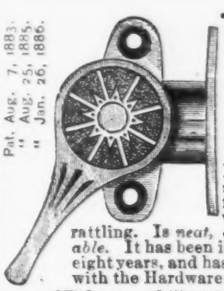
Illustrated Price-List on Application.



The Champion SIDE Sash Lock

Has by its *unequalled merits* gained the public favor. It is a safe ventilator and prevents rattling. Is *neat, cheap, simple and durable.* It has been in *extensive use* for over eight years, and has become a *staple article* with the Hardware trade.

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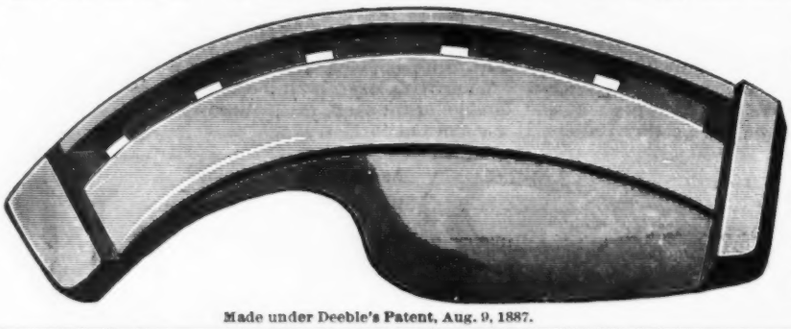
SPECIAL DROP FORGINGS.

FORGED OX SHOES.



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Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

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The Best and Cheapest in the World.

Blunt Calk. Seven Sizes.

Warranted to outwear any shoe made.

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Sharp Calk. Six Sizes.

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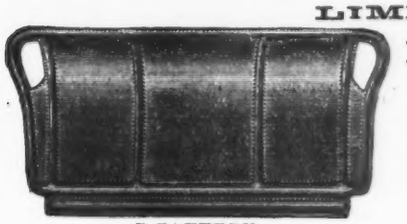

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NEW pattern Heavy Screw Clamps. Strongest in the market.

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Blocks furnished equipped with grips if desired.

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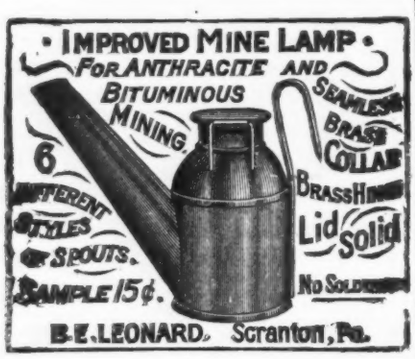

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No waste material. Every ounce of weight in the line of strength. No clumsy outside straps or bolts. As light as wooden blocks and vastly more durable. They wear, but never break. Sheaves interchangeable

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With Steel Screws. U. S. Standard and the points hardened.

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6	1	70		18	4½	2 75	
7	1¼	80		19	5	3 25	
8	1¼	80		Full set of 19,		$23.60.	
9	1⅜	95		20	(extra) 5½	4 00	
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One small set of 8, by ¼ in. to 2 in. 6 25
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Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

This Wrench can be Furnished with Long Nut or Sleeve.

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The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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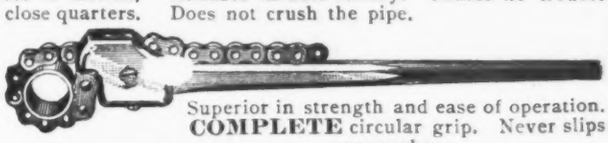
TRIMO PIPE WRENCH,

Forged Steel.

All parts interchangeable.

Grips firmly without loss of motion, in close quarters. Releases its hold readily. Does not crush the pipe. Causes no trouble

TRIMO CHAIN PIPE WRENCH.



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DROP FORGED from BEST BAR STEEL in Lengths from 6 to 24 inches

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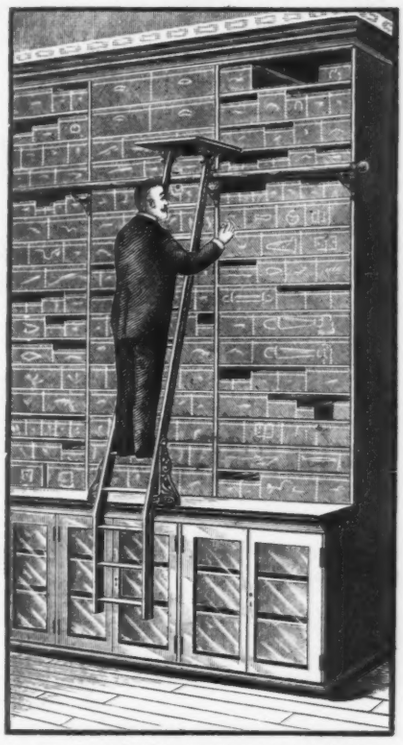

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The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made.

Ladders are not *Suspended*, but *Supported* from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit.

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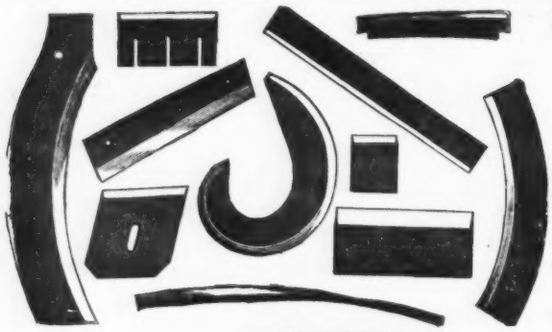

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End view of Plated Stock for Dies, Lawn Mower Knives, Blades &c., showing how the Steel is laid.

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The Hercules Screw Driver and Tack Claw (Patented).

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The Strongest and Most Durable Wrench and Screw Driver Made.

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Genuine Improved

KNIFE HANDLE

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MANUFACTURED BY

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Established in 1830.

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Patented July 8, 1884.

Sectional View illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position.

☞ Straight Bar, Extra Long Nut for Screw in Jaw. ☜

The BEST MADE and STRONGEST WRENCH in the MARKET

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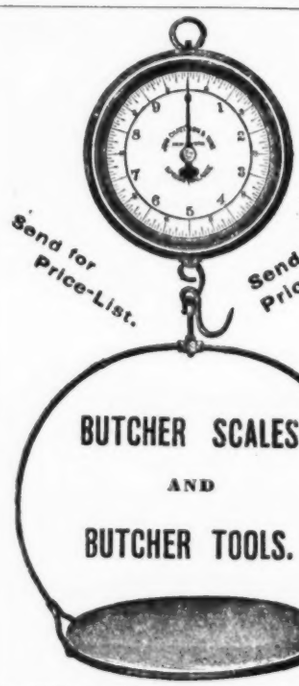

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DO YOU SELL

THE BIEDER ADJUSTABLE Grass Catcher?

Your Competitors Do.

No. 7 fits all low wheel Mowers.

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TRY YOUR JOBBER FIRST.

THE NEW QUAKER CITY LAWN MOWER.

REAR CUT, INCASED GEAR.

Has Patent Cylinder Knives, and Eno's Patent Yielding Bed Knife, Making it the Most Durable Mower of this Pattern in the Market.

Made in 5 Sizes, 10, 12, 14, 16, 18 Inches.

Also Manufacturers of PENNSYLVANIA, CONTINENTAL, GREAT AMERICAN LAWN MOWERS, HORSE AND PONY MOWERS and GRASS CATCHERS.

☞ There is no question for doubt that the manufacturers of these Mowers manufacture double the quantity of Lawn Mowers of any other manufacturer in the known world, and have not made their reputation from price alone, but from the Quality of mowers turned out.

SUPPLEE HARDWARE CO.. PHILADELPHIA.

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HENLEY'S LAWN MOWERS

First-class high grade machines, made of the best materials. Neat, symmetrical, strong, durable and unexcelled in construction and ease of operation. Does perfect work. For prices address

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CACTUS LAWN SPRINKLER.

INDESTRUCTIBLE, BEAUTIFUL, CHEAP.

NO REVOLVING PARTS.

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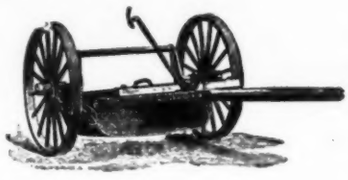

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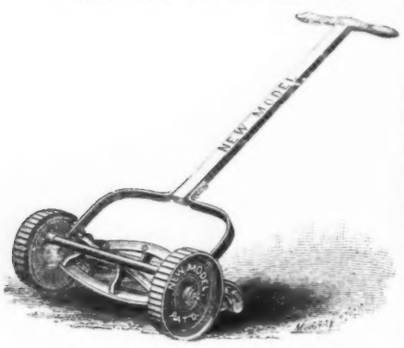

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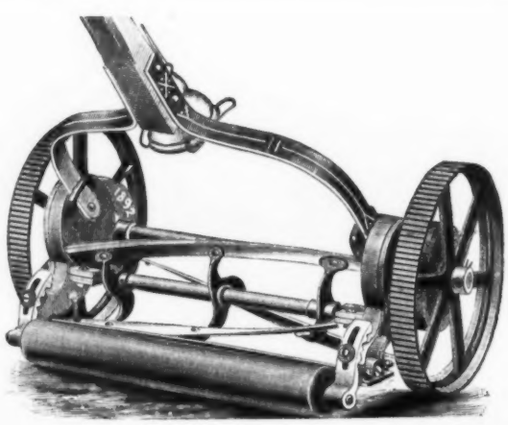

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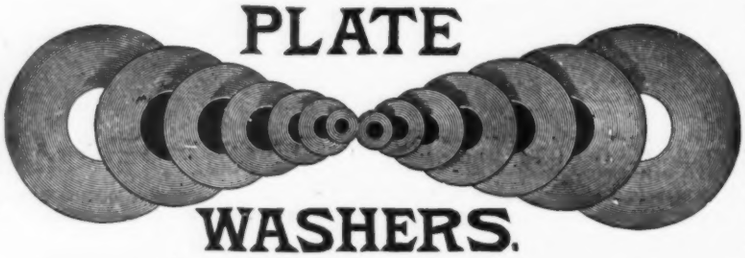

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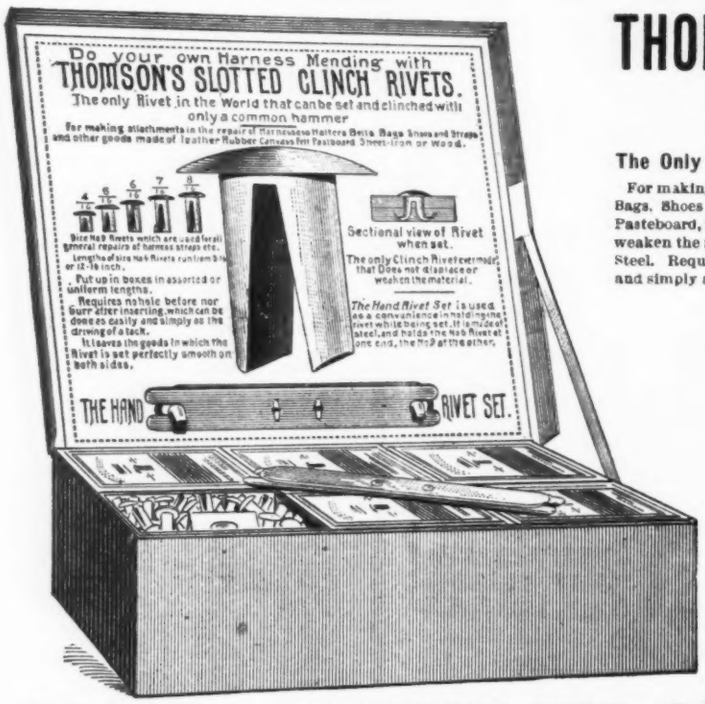

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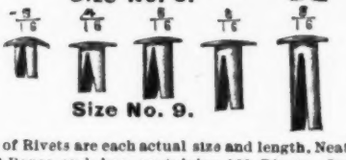

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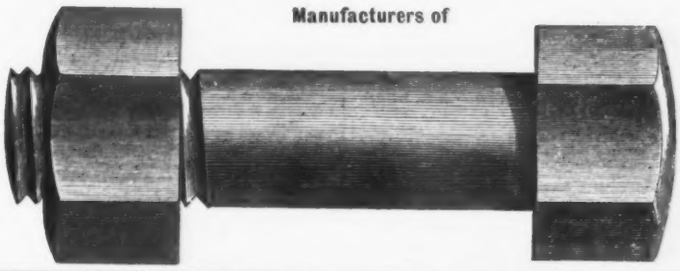

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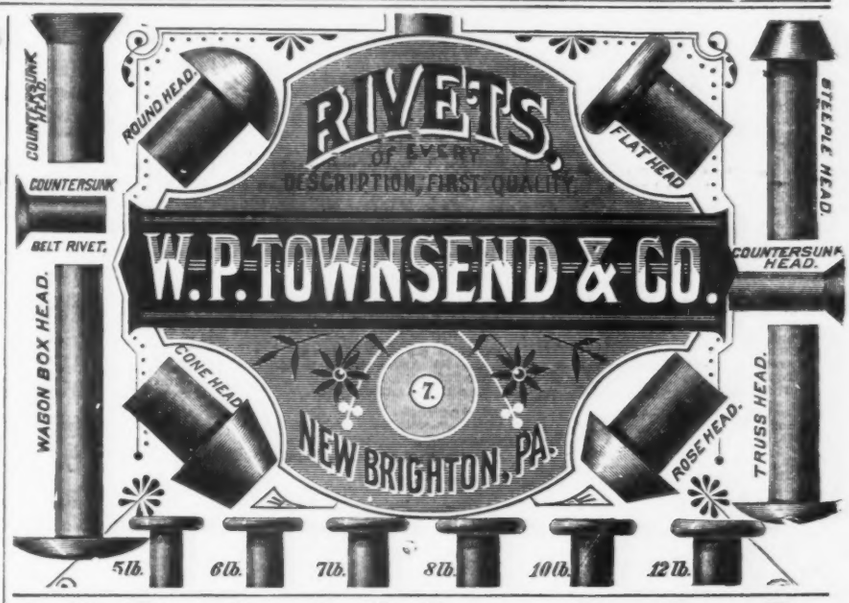

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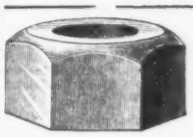

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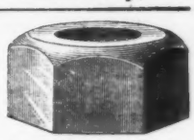

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Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Allentown Rolling Mills, Allentown, Pa
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Byram & Co., Detroit, Mich.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co., Chicago, Ill.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N. Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain, Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia, Pa.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa.
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electric Elevators.
Smith Hill Co., Quincy, Ill.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators. *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R. I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa
Tallman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Buckeye Engine Co., Salem, Ohio.
Chandler & Taylor Co., Indianapolis.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works, Harrisburg, Pa.
Norwalk Iron Works Co., S. N
Shipman Engine Co., Boston, M

See Alphabetical Index, Page 108.

Southwark Foundry and Machine Co
Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N.Y.
Kelley, B. F. & Son, 31 Liberty St., N. Y
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co., Clinton, Mass.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence, R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Foos Mfg. Co., Springfield, Ohio.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Foundry Riddles.
Estey, W. S., 71 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collins, Victor, Detroit, Mich.
S. Obermayer Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fruit Presses.
Enterprise Mfg. Co., Philadelphia, Pa.
Shepard Hdw. Co., Buffalo, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Garden Tools.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Fancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. S. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Mass.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Mouce, S. G., Bristol, Conn.

Glazier Twin Points.
kames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. & Co., Gloucester, Mass.
Ocean Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grinding Mills.
Foos Mfg. Co, Springfield, O.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Coburn Trolley Track Mfg Co, Holyoke, Mass
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brady Mfg. Co., Brooklyn, N. Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Granam, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 29 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplus, Dunn & Alder, 97 Chambers St., New York.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Cleveland Fdy. Co., Cleveland, O.
Copeland Hdw. Mfg. Co., Worcester, Mass.
Eilrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
Richardson, J. C. & Co., Ridgway, Pa
The Stanley Works, New Britain, Conn
Welland, Chas., 113 Chambers st., N. Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.
Missouri Mal. Iron Co., St. Louis, Mo.

Hog Rings and Ringers.
Hill, Hugh W. & Co., Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. E., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St., N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Peerless Freezer Co, Cinn, O.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. H. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia,
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. H. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 Water, St., N. Y.
Leonard, J., 446 West St., N. Y.
Naylor & Co., 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Wangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Joist Hangers.
Duplex Hanger Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Dietz, R. E. & Co., 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.
N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Etue & Henger Mfg Co, St. Louis, Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St Louis, Mo.

Lead Pipe Cutters.
Barrett, C. E., Brockton, Mass.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Athol, Mass.

Locks & Knobs. *Manufacturers of.*
Canton Combination Lock Co., Canton, Ohio.
Clarien Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Reading Hdw. Co, Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H., Lockport, N. H.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co, Laight & Canal Sts.
Gould & Eberhardt, Newark, N. J.
Harrington, E. Son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
MacKinnon, J. A. Mch. Co., 22 Warren
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y.
Ohio Machine Tool Wks, Cincinnati, O.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machine Tools.—*See Machinery.*

Machine Work.
Angus, C. H., Albany, N. Y.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Branford, Conn.
Dingee, J. H., Philadelphia, Pa.
C. M. & St. P. R. R.
Mordant F. & Co., Chicago.
Norfolk & Western R. R.
Ogden, Utah.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bet. Iehem, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrnardt, Gastave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, R. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett's Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct.

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.
Williams, H. A. Mfg. Co., Boston, Mass

(See Alphabetical Index, Page 108.)

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Selbert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting & Packing Co. Ltd., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., JerseyCity, N.J.
U. S. Graphite Co., Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Dudley, W. U. & Co. Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Reber, 8 Spruce St., N. Y.

Pencil Sharpeners.
Gcodel Co., Antrim, N. H.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Farclay, N. Y.

Pipes, Flit'gs, &c., *makers of.*
McNab & Harlan Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila., Pa.
Donaldson Iron Co., Emaus, Pa.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plating, Nickel, Brass and Bronze:
Angus, C. H., Albany, N. Y.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Masseaner, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. Y. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden
Waterbury Farrel Foundry and Mahine Co., Waterbury, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Cleveland Hdw. Co., Cleveland, Ohio.
New Doty Mfg. Co., Janesville, Wis.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S., 71 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Foston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Weiland, Chas., 143 Chambers St., N.Y.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disoway & Henderson, 165 Greenwich, Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron F'dry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Garry Iron & Steel Roofing Co., Cleveland, Ohio.
Johns, H. W. Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.
Stewart & Baker Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Duplex Hanger Co, Clevel nd, O.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N.Y.
National Saw Co., 96 Reade St., N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co, Fitchburg, Mass.

Saw Sets.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
New Britain Hdw. Mfg. Co., New Britain, Conn.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—*Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Belleville Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henley, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Skylights.
Plenty Horticultural & Skylight Wks., 145 Liberty St., N. Y.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Cary, Alanson, 240-242 W. 29th St., N. Y.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Hardsley, J., 149 & 151 Baxter St., N.Y.
Chicago Spring Butt Co., Chicago, Ill

Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 108 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Squares.
Hatch & Holmes Mfg. Co, Bridgeport Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co. Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth, Mass.
Titchener, E. H. & Co., Binghamton N. Y.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutsman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 88 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermman & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw. & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa.

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stove Polish.
Raven Stove Polish Co., Chicago, Ill.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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Theatrical Hardware.
Clancy, J. R., Syracuse, N. Y.

Tack Hammers.
Richardson, J. C. & Co., Ridgway, Pa.

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Green wich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover, Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros. Testing Mch. Co., Phila.

Testing Laboratories.
Riehle Bros. Testing Mch. Co., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tire Cement.
Am. Trading Co., 182 Front, st., N. Y

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, Starrett, L. S., Athol, Mass.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Standard Lighting Co., Cleveland, O

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.

Washers.
Haskell, Wm. H. Co., Pawtucket, R. I.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Water Heaters.
Kemp, Clarence M., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Well Boring Machines.
Oil Well supply Co., Pittsburgh, Pa.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Miller & Van Winkle, 102 Walker St., New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 71 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff
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N. J. Wire Cloth Co., Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth Holders.
Hamilton-Rankin Hdw. Co., Arkansas City, Kan.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

Wire Nail and Tack Machines
Eckstein, Chas G & Co., 41 John N. Y

Wire Nails.
Amer. Wire Nail Co., Anderson, Ind
Baackes Wire Nail Co., Cleveland, O.
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N. Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill.
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel
Makers.
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Woodenware.
Tucker & Dorsey Mfg Co., Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches, *Manufacturers of.*
American Saw Co. Trenton, N. J.
Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Rhode Island Tool Co., Providence, R.I
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

Wringers.
Colby Wringer Co., Montpelier, Vt.

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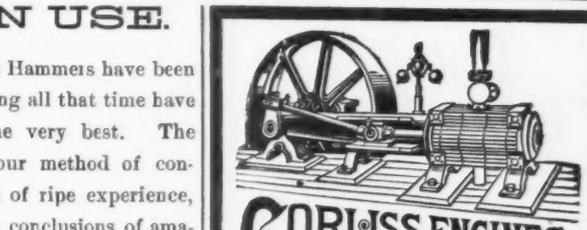

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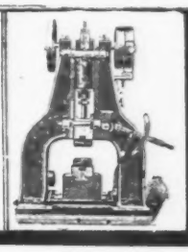

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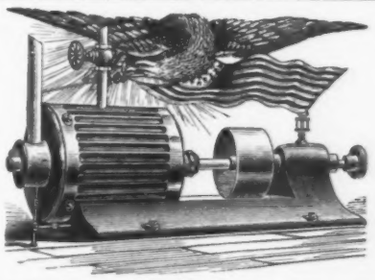

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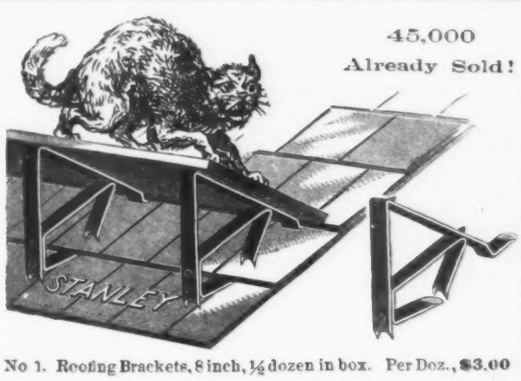

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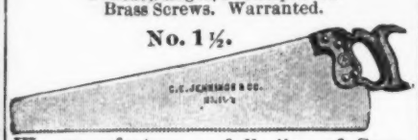
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Vol. XLIX: No. 24. *New York, Thursday, June 16, 1892.* $4.50 a Year, including Postage. Single Copies, Ten Cents.

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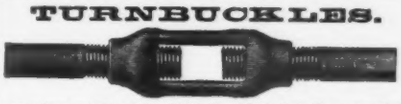

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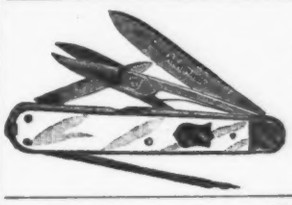

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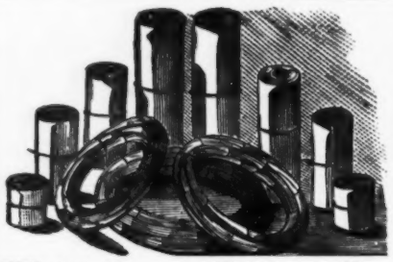
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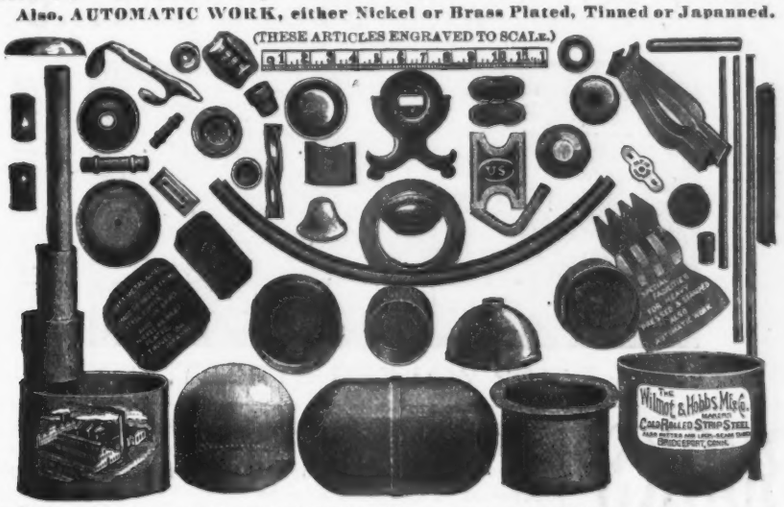

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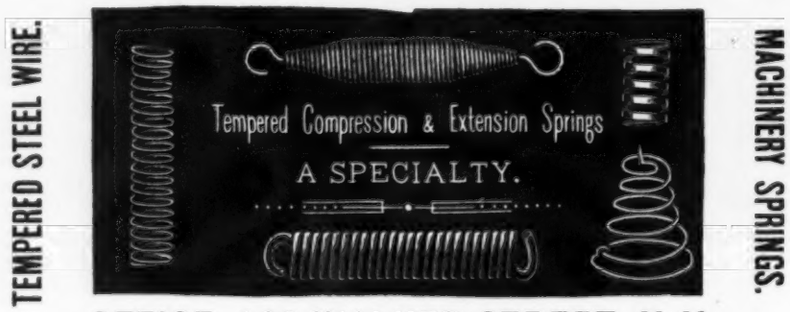

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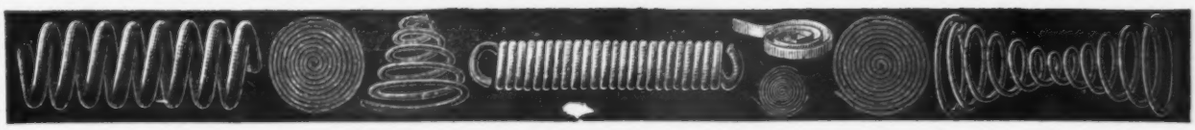

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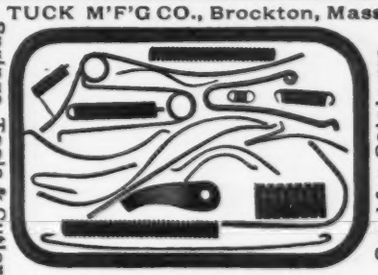

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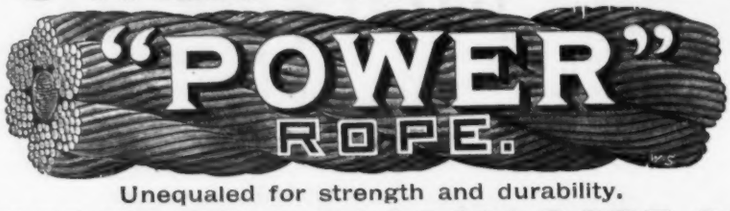

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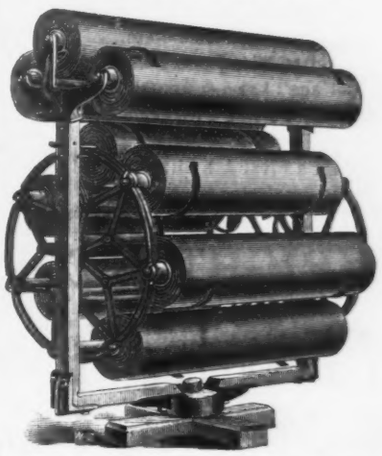

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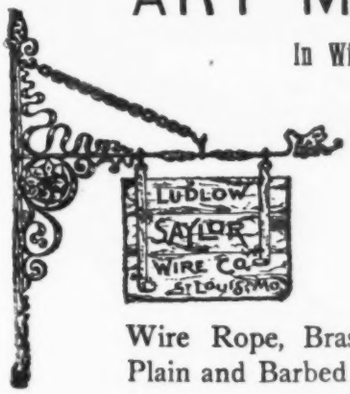

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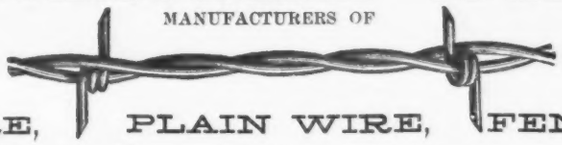
BARBED  WIRE,
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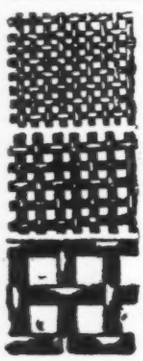

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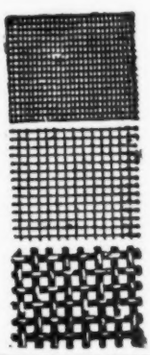

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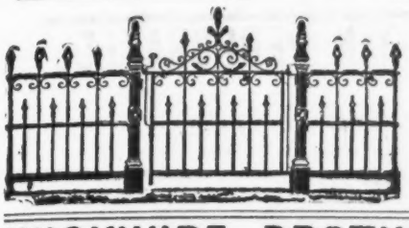

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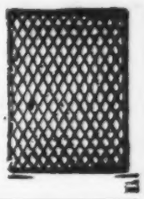

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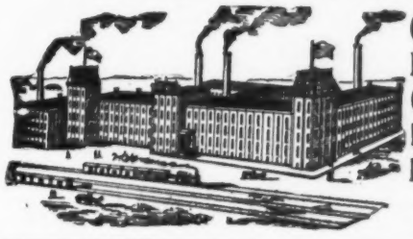

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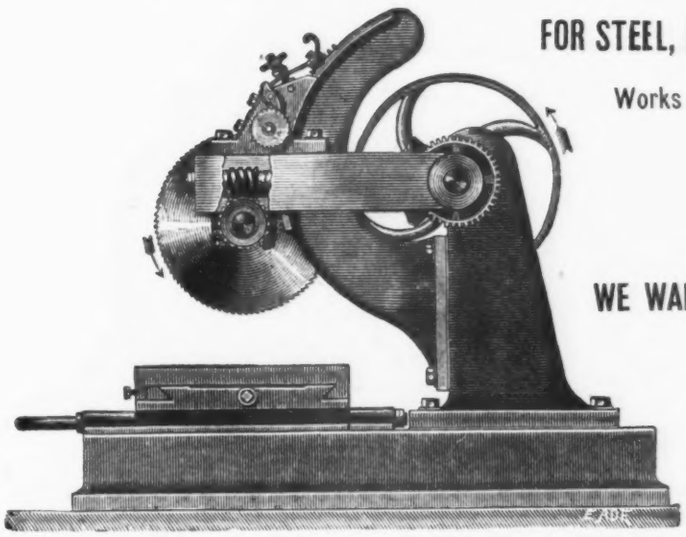

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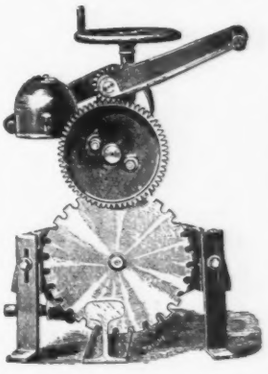

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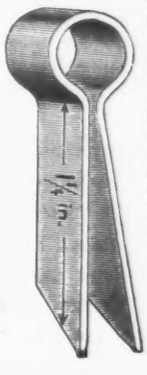

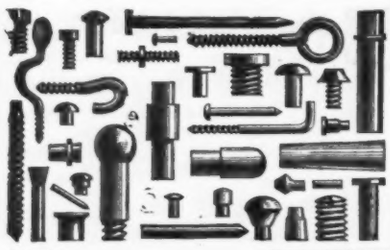

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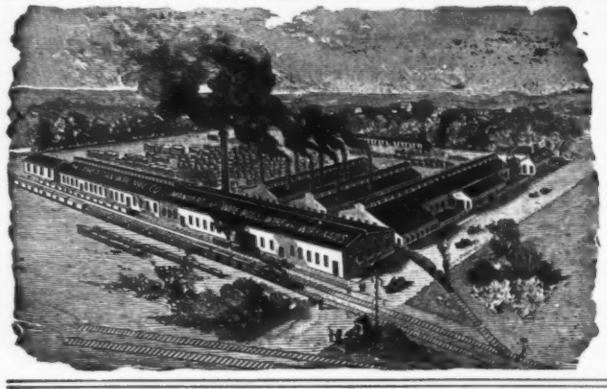

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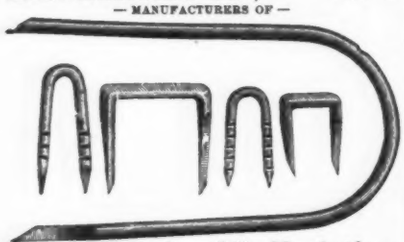

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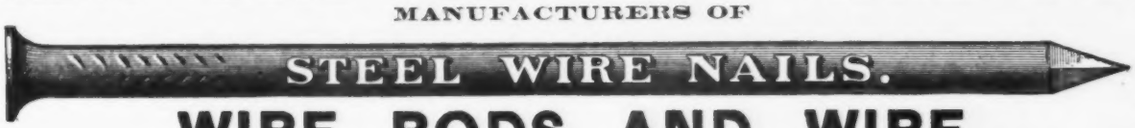

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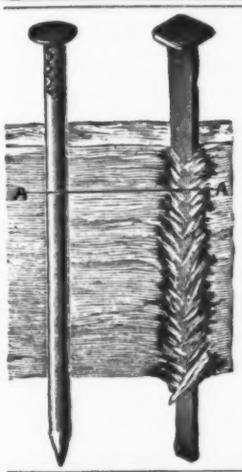

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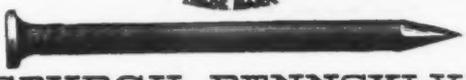

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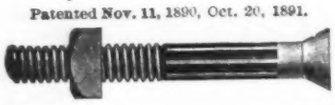

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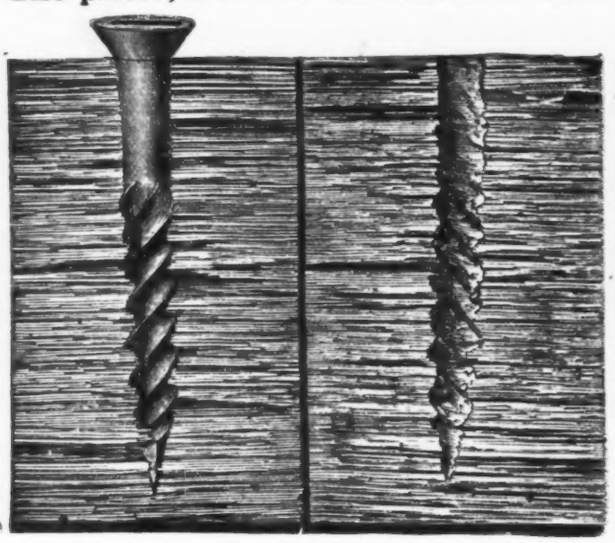

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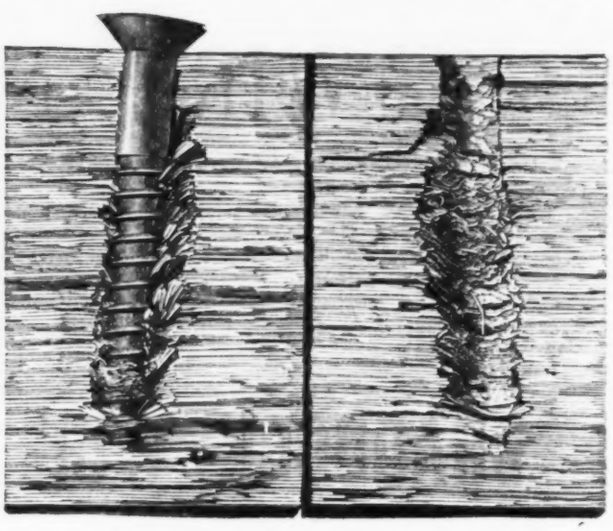

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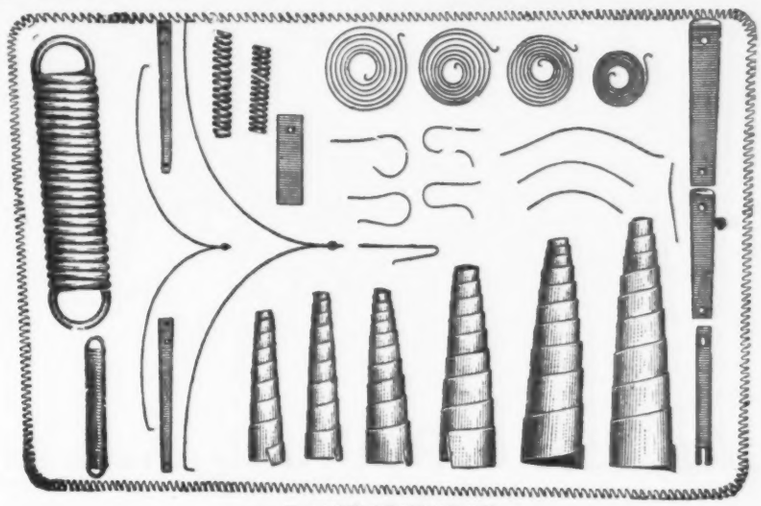

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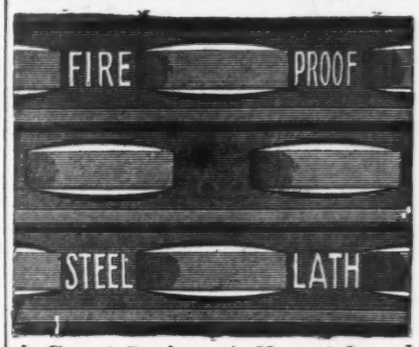

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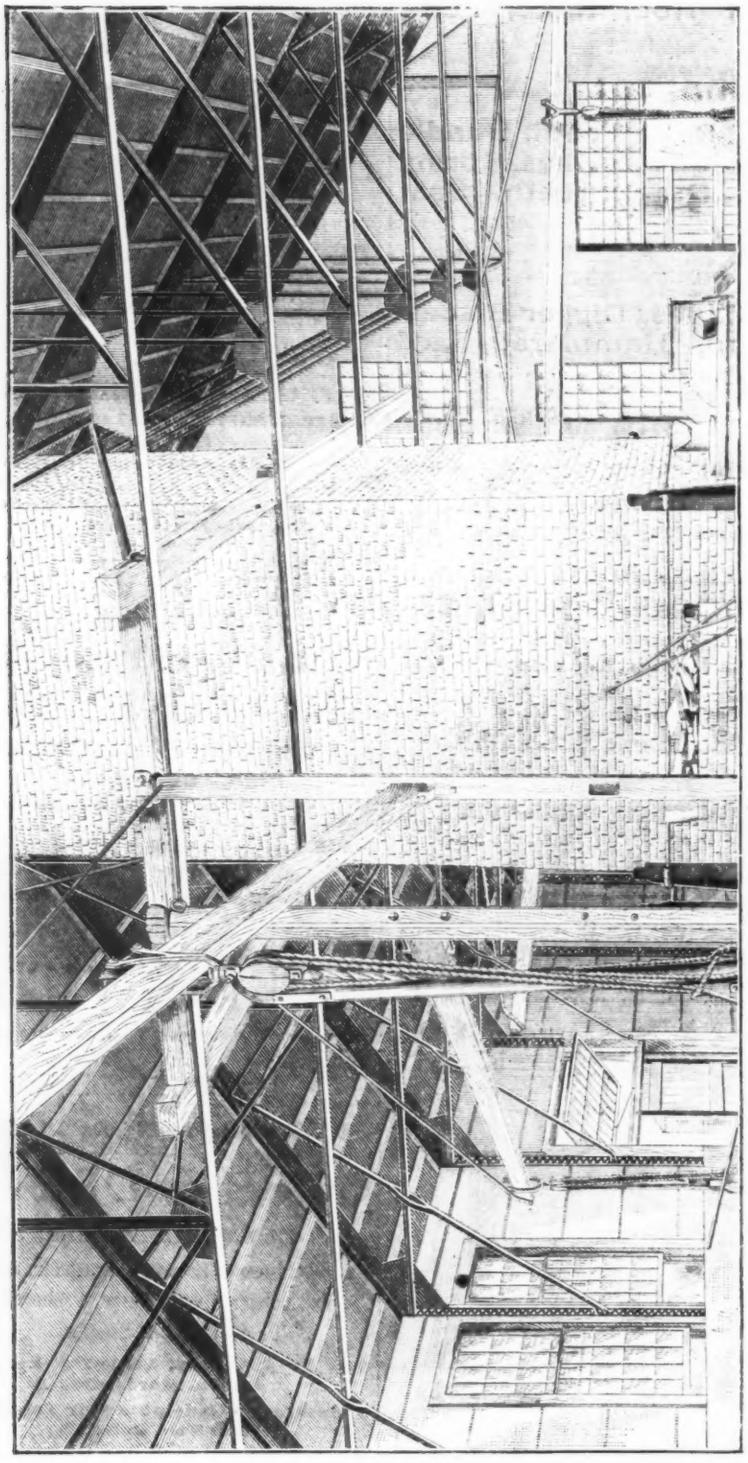

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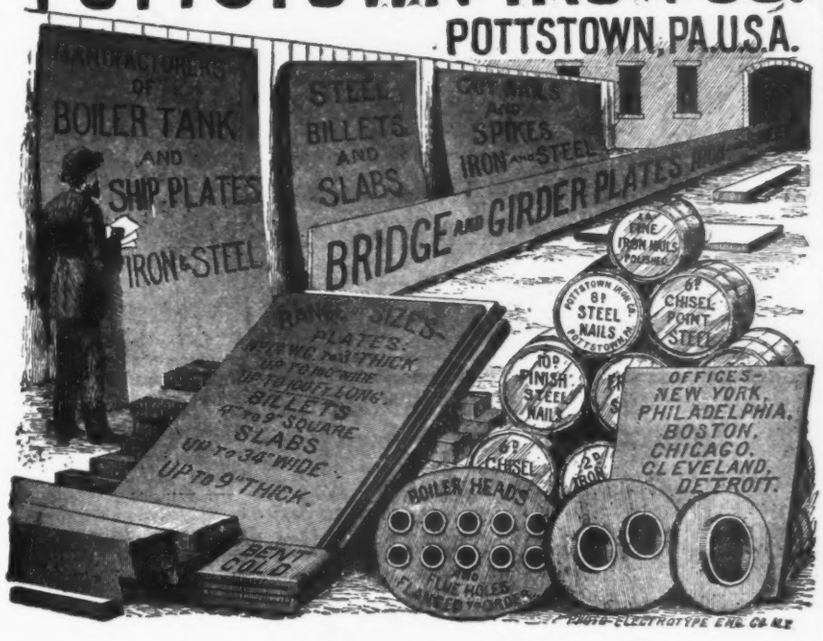

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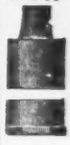

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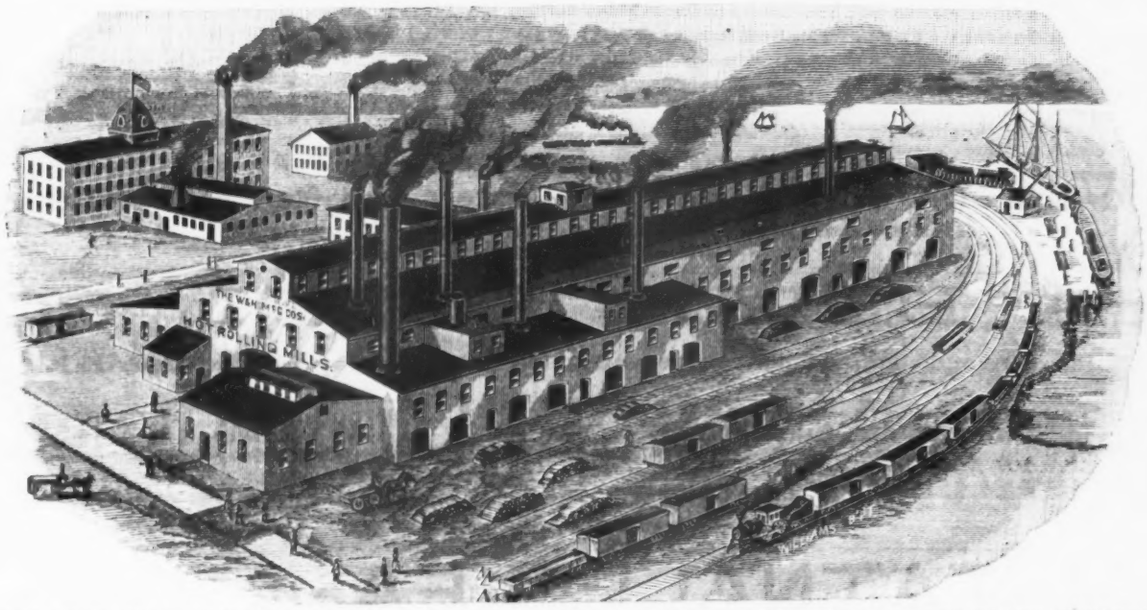

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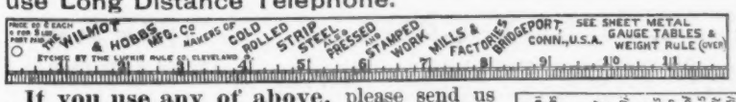

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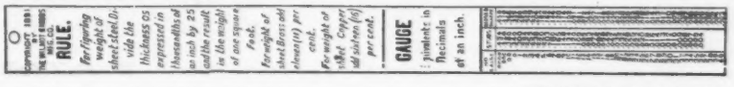

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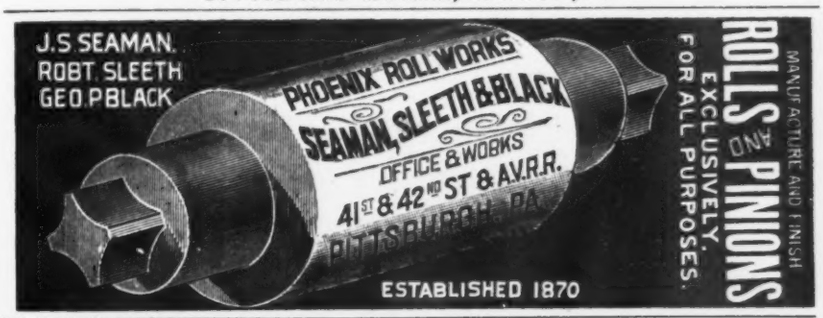

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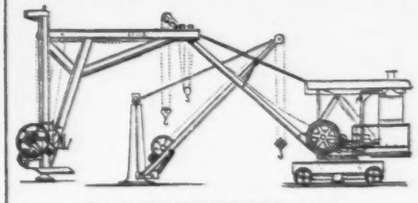

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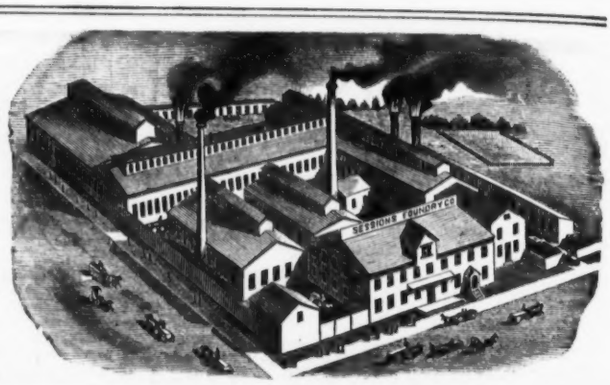

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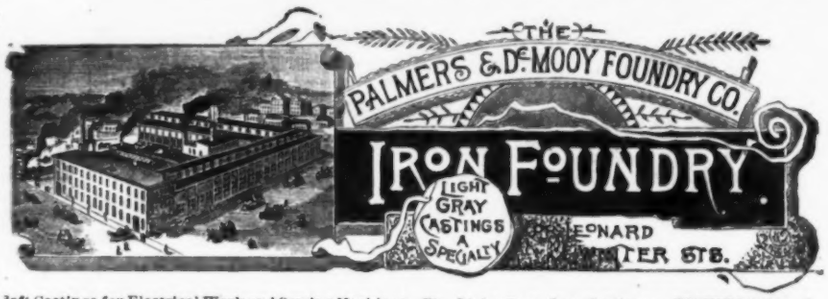

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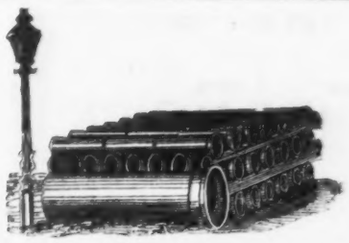

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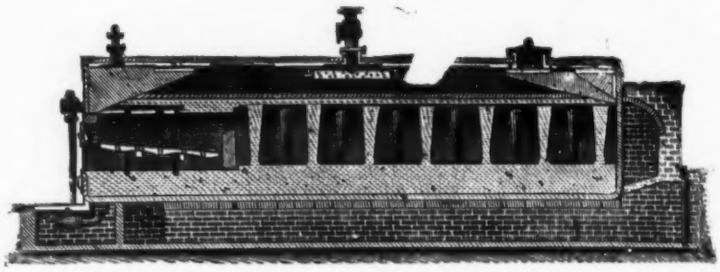

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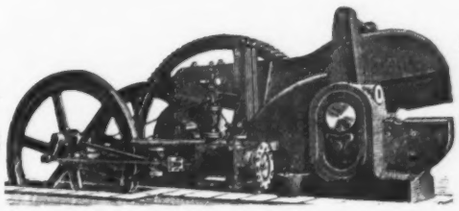

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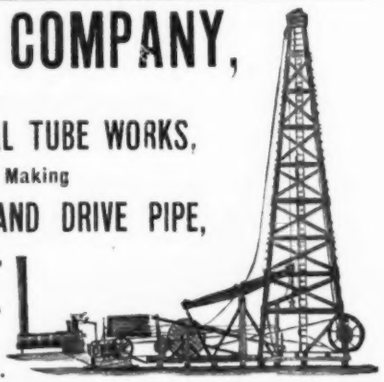

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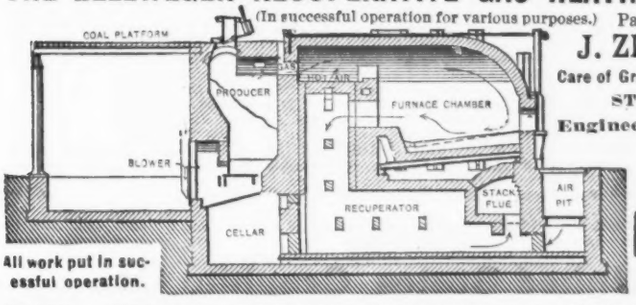

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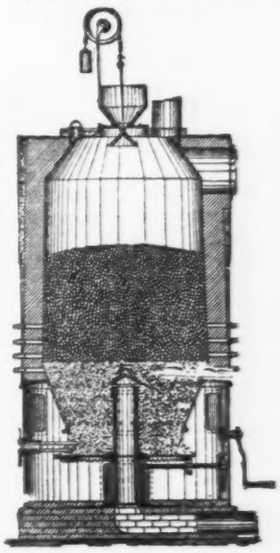

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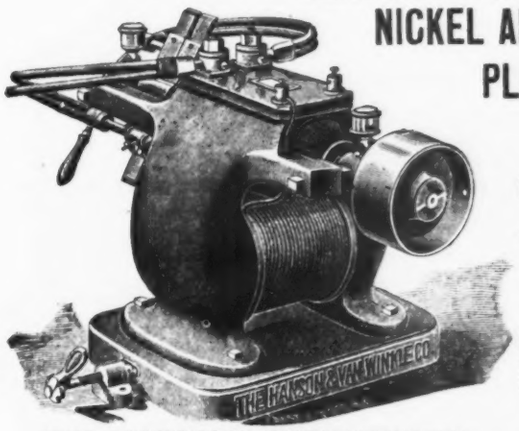

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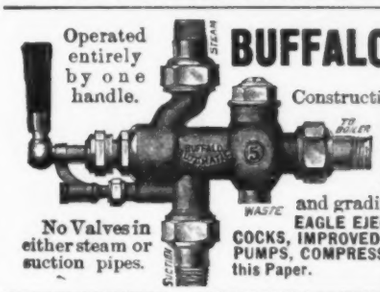

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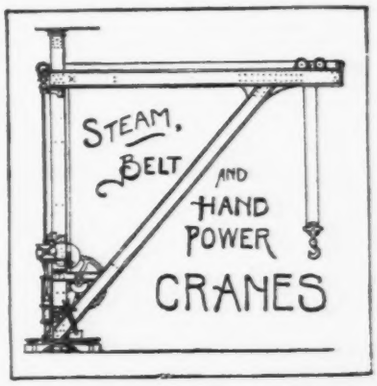

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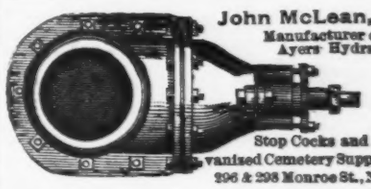

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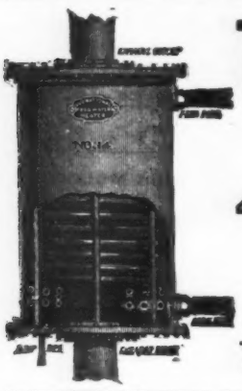

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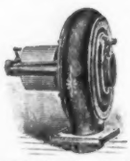

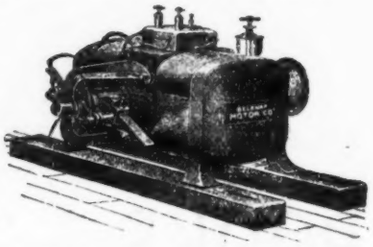

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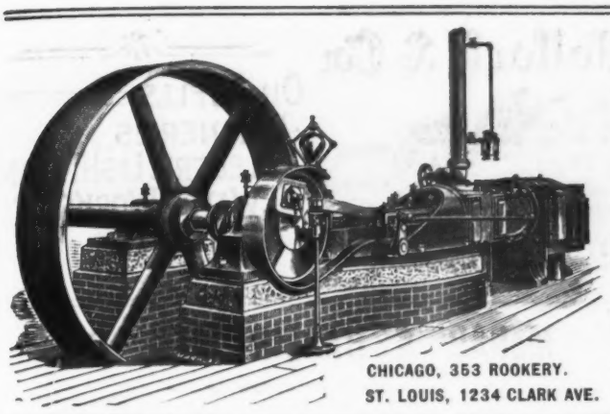

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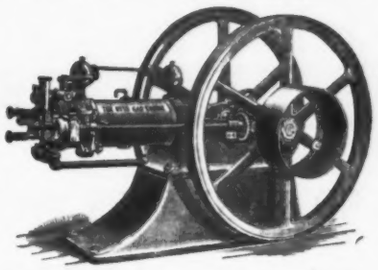

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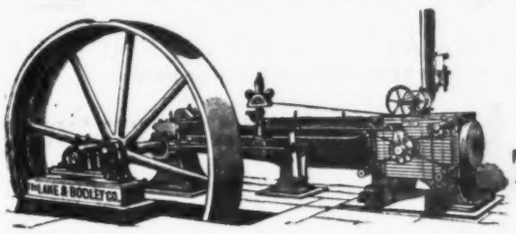

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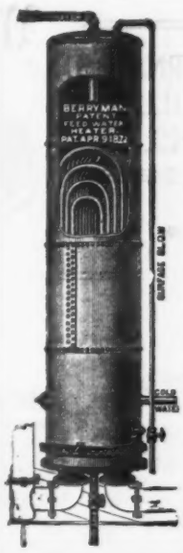

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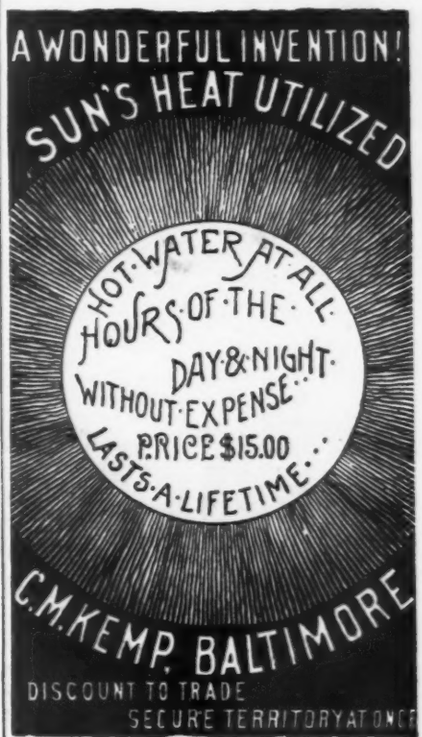

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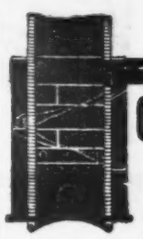

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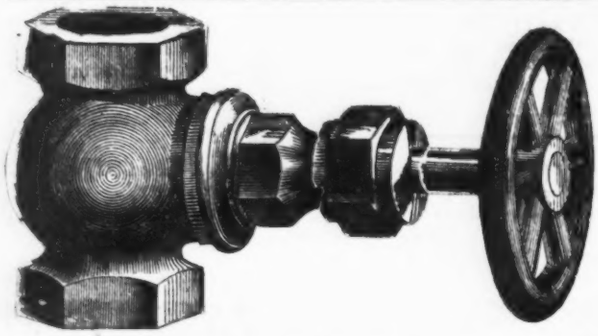

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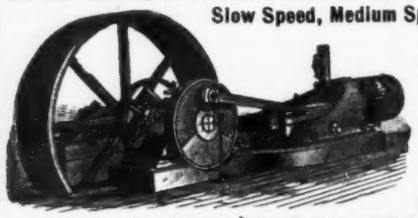

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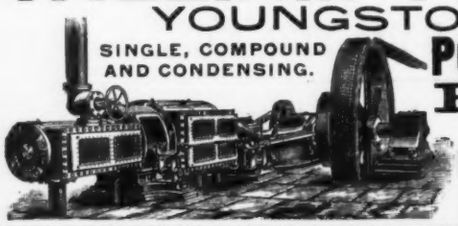

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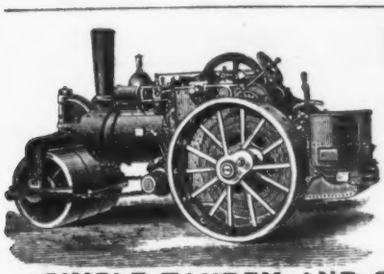

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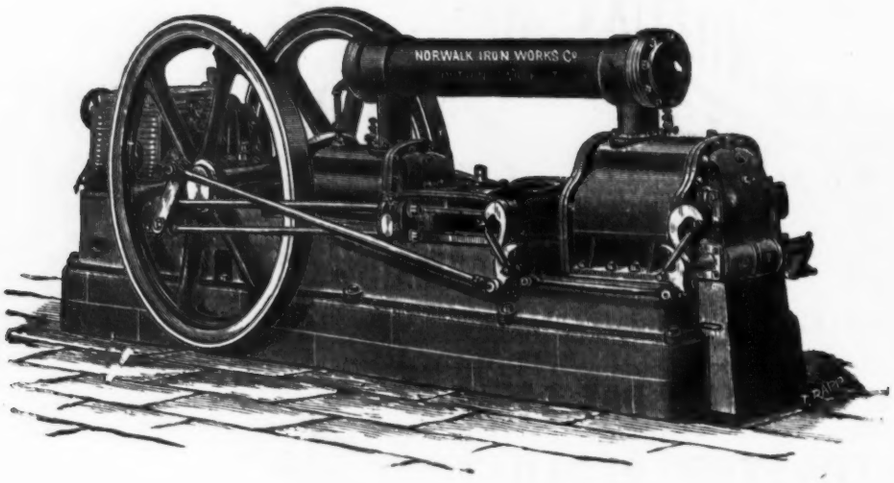

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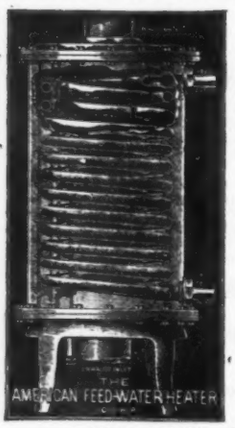

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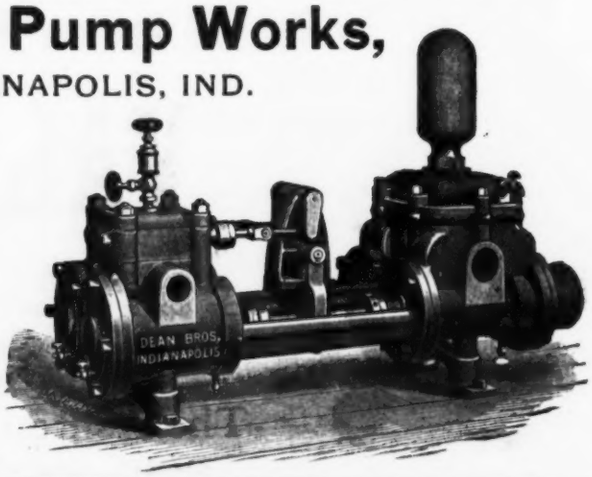

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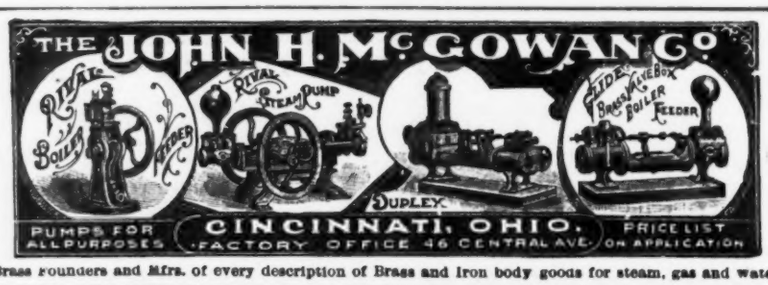

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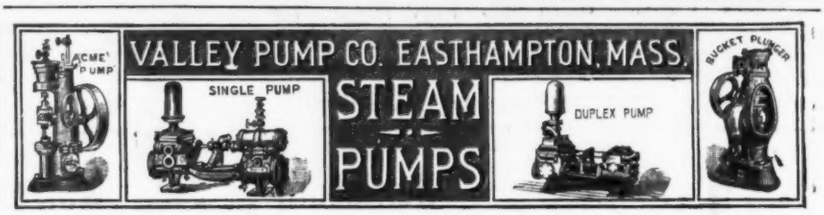

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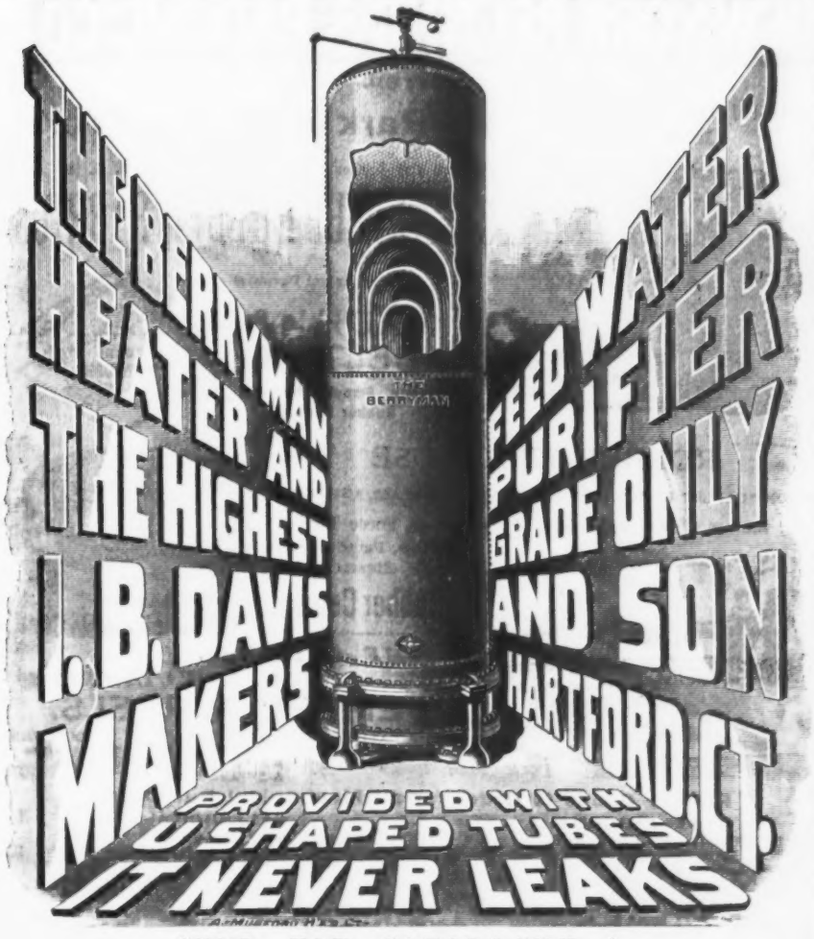

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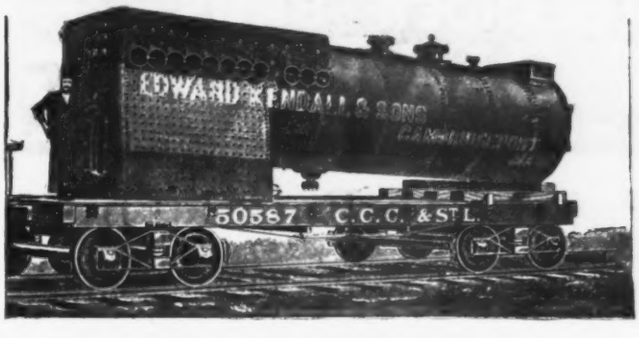

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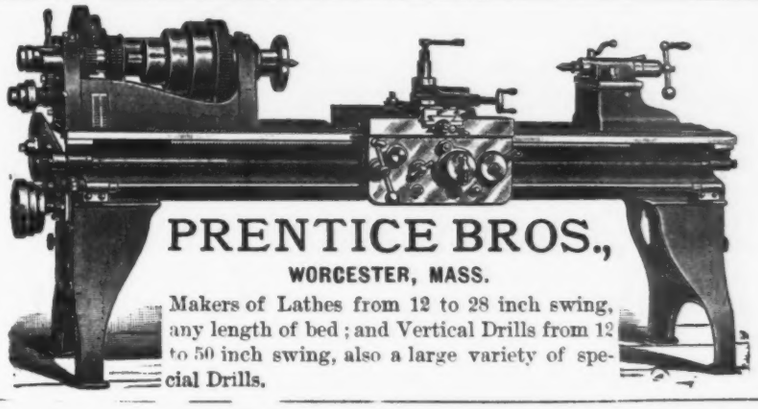

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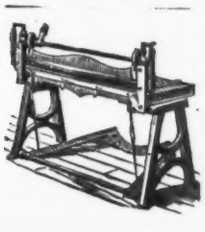

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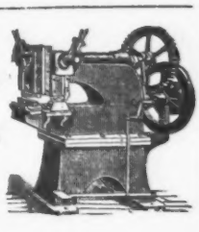

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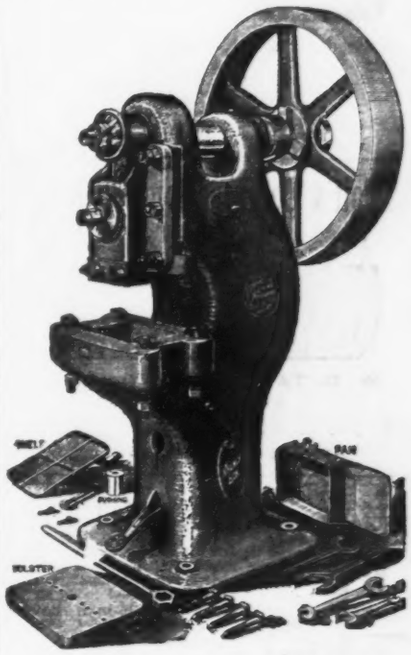

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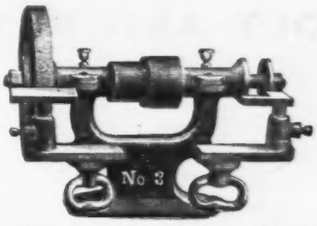

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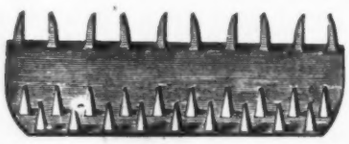

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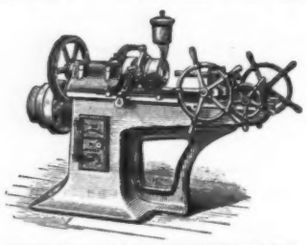

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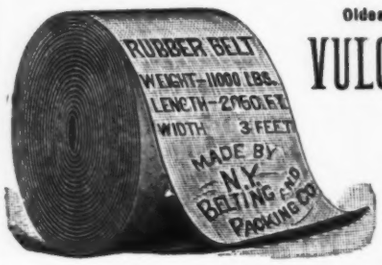

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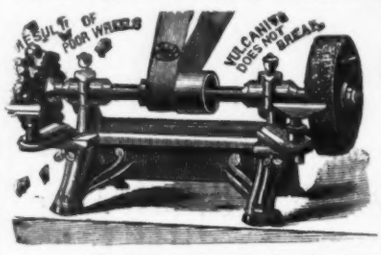

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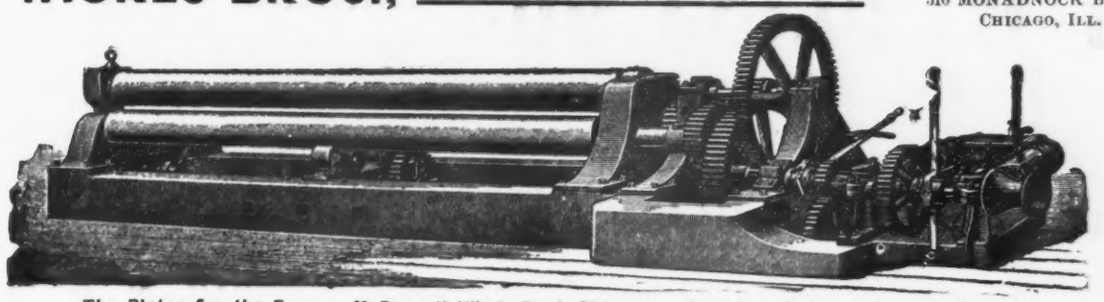

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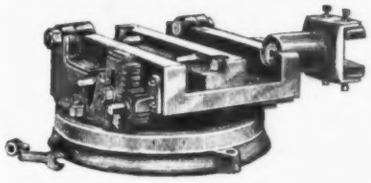

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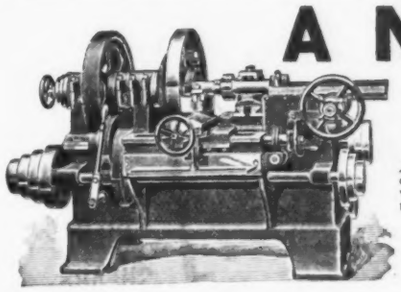

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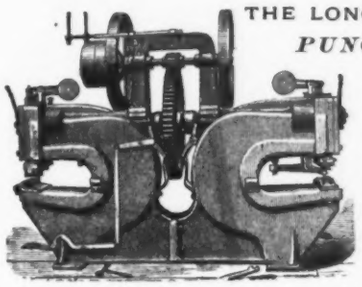

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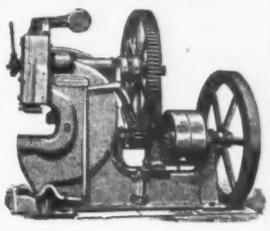

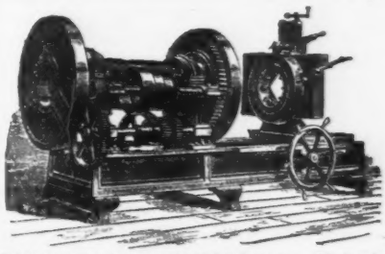

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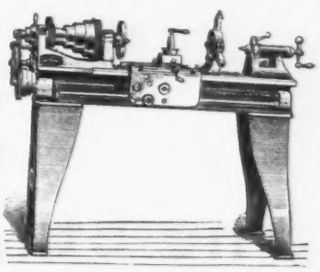

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This is a page from our SECTIONAL CATALOGUE. If you want Presses, Dies, Shears or Machinery for working sheet metal write to us.

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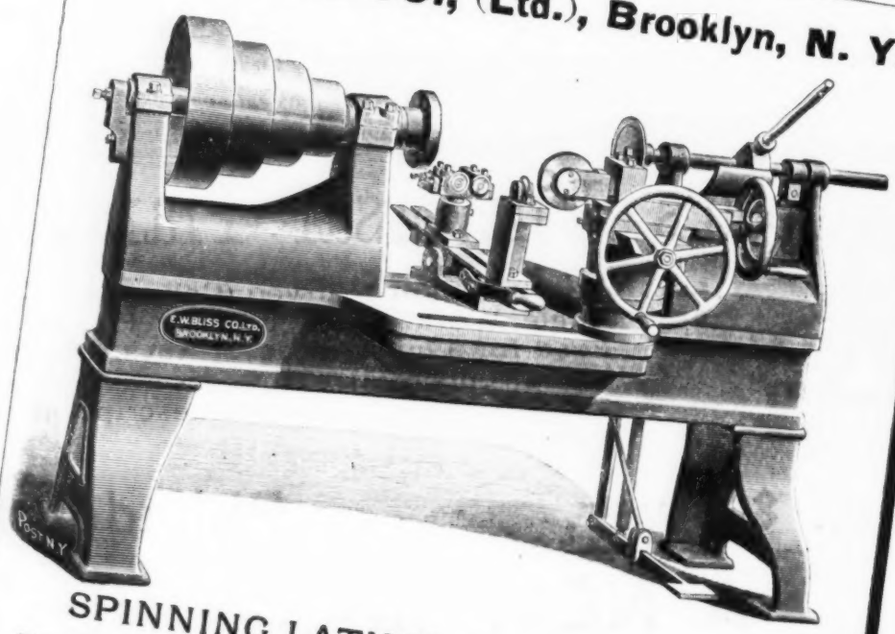

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These Lathes are for spinning, burnishing, trimming and wiring such work as is produced by the Drawing Presses, where such spinning is necessary. They are also used for hand spinning from the flat and when intended for that purpose a T rest is provided, instead of the compound rest.

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No. of Lathe.	No. 4	No. 5.	No. 6.
Price of lathe and countershaft, without compound rest, burnisher, trimming or wiring attachment	$125.00	$140.00	$260.00
Compound rest	100.00	125.00	150.00
Anti-friction burnisher	35.00	40.00	40.00
Trimming attachment	30.00	35.00	35.00
Wiring attachment	10.00	10.00	10.00
Tilting rest alone	25.00	25.00	30.00
Price complete as above	$325.00	$375.00	$525.00
Weight, about	850 lbs.	1,200 lbs.	3,000 lbs.
Length of bed	54 ins.	70 ins.	76 ins.
Swing over bed	20 ins.	22 ins.	30 ins.
Swing over rest	13 ins	15 ins.	21 ins.
Diameter of cones	5 7/8 & 10 ins.	6, 8 & 10 ins.	8, 11, 14, 17 ins.
Face of cones	2¼ ins	3 ins.	4 ins.
Diameter of T. and L. pulleys on countershaft	12 ins.	12 ins.	16 ins.
Width of T. and L. pulleys on countershaft	3 ins.	3 ins.	5 ins.
Speed of countershaft per minute	300 rev	250 rev.	200 rev.

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Oval Chuck, 38 inch in diameter, with difference in ovals of 10 inches..... 250.00 net

Cast Steel Spinning Chucks furnished of any desired pattern.

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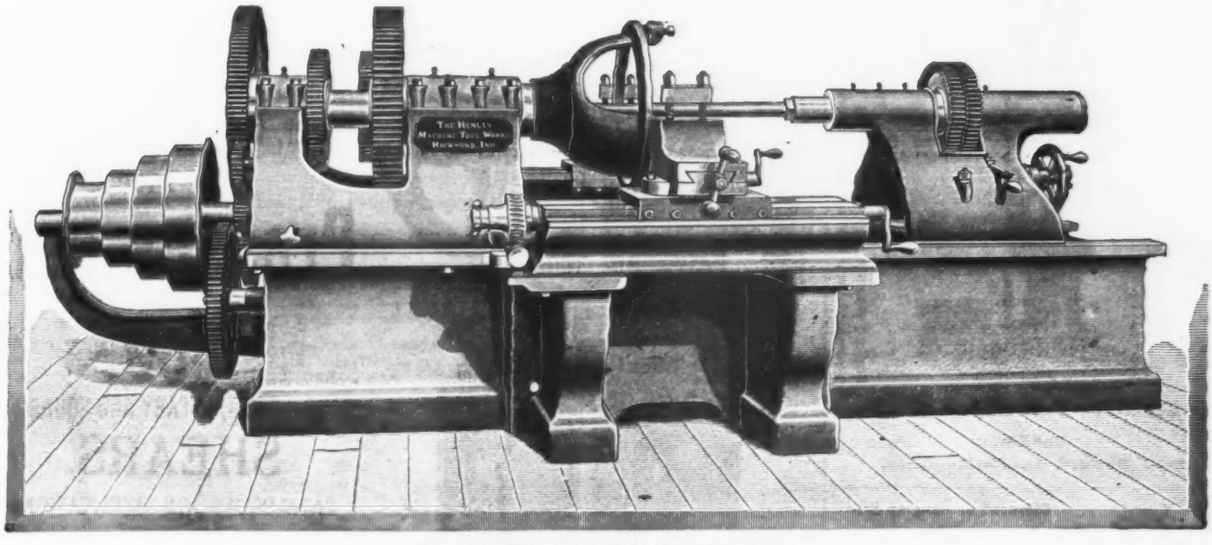

Patented Feb. 17, 1891; June 14, 1887.

This cut represents the 42-inch Lathe. The 60-inch Lathe is of same design, but much heavier throughout. The 30-inch Lathe is of same general construction, with the bed supported on feet at each end.

These Lathes are especially designed for Simultaneously Boring and Turning Pulleys, both straight and crowning face, Cone Pulleys, Gear Blanks, and a variety of other work.

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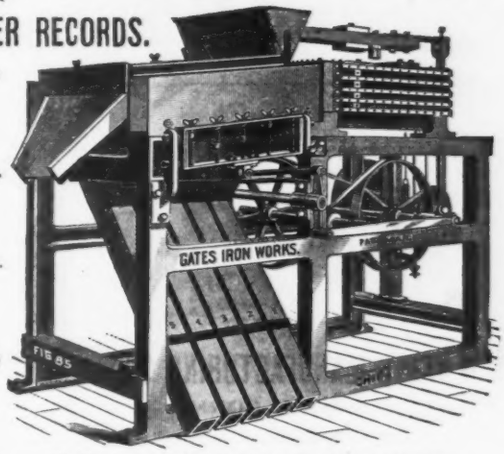

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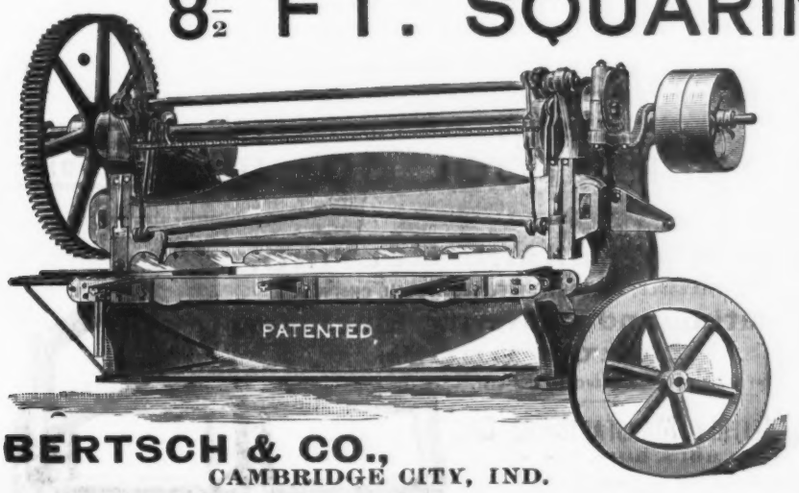
8½ FT. SQUARING SHEAR



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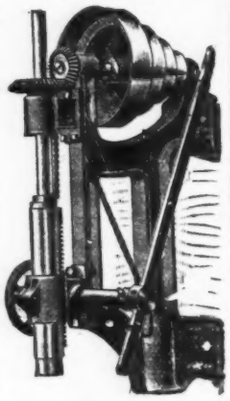

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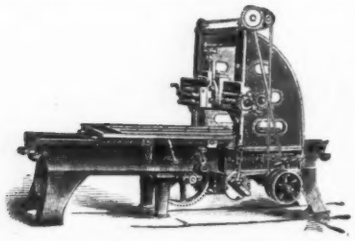

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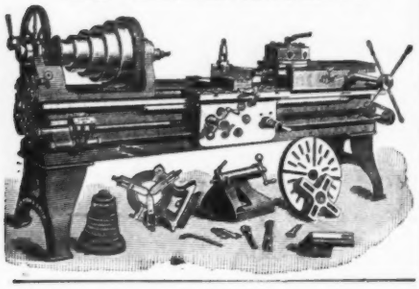

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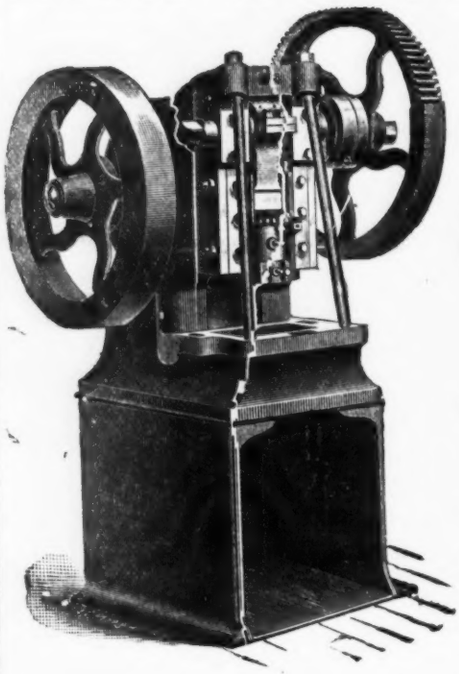

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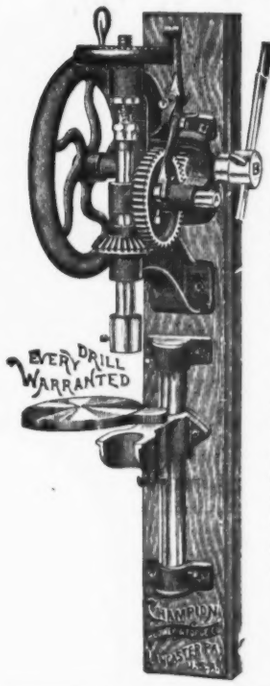

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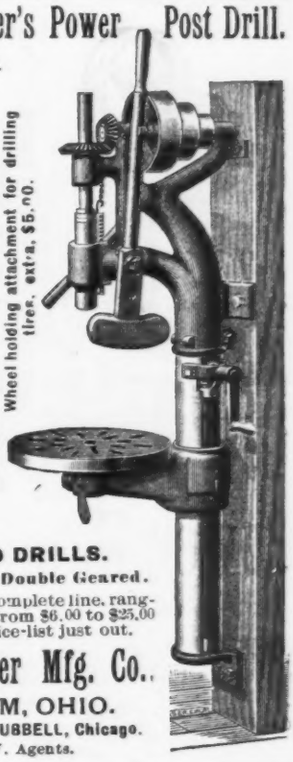

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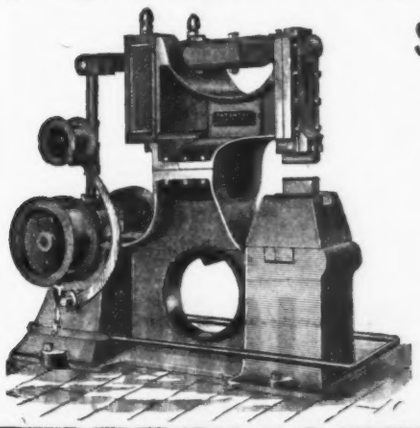

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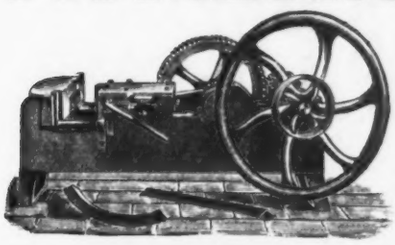

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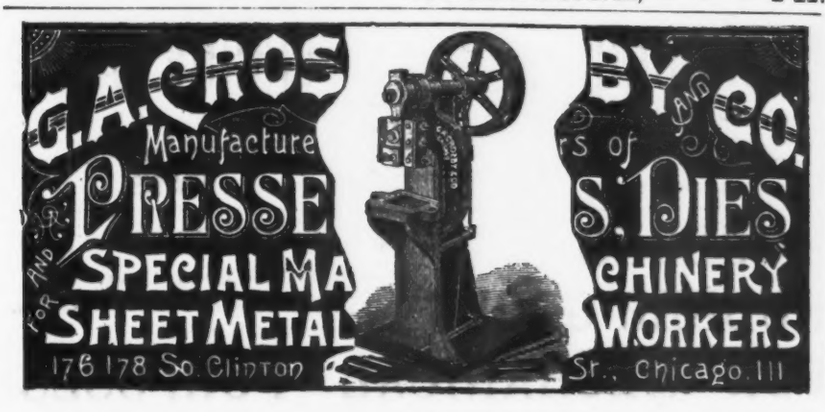

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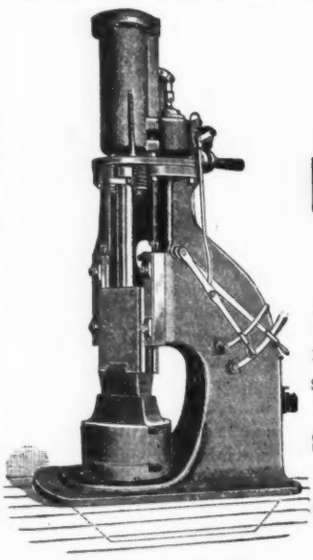

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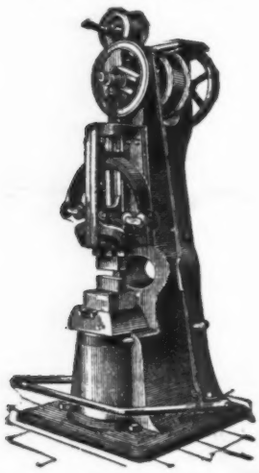

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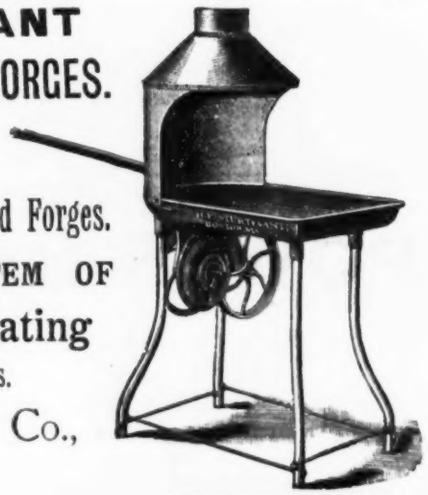

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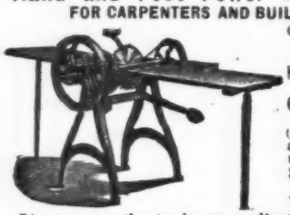

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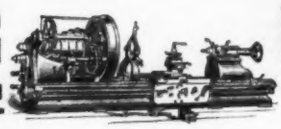

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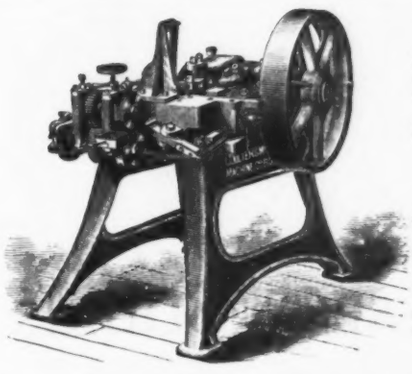

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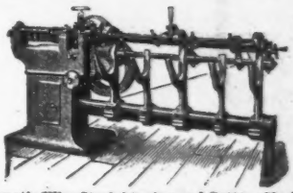

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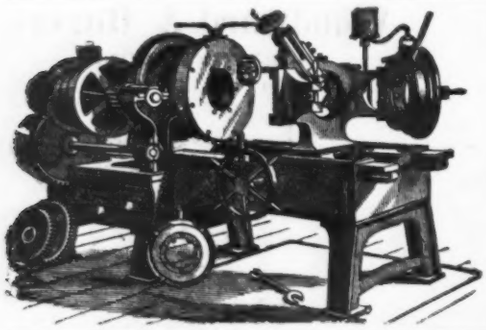

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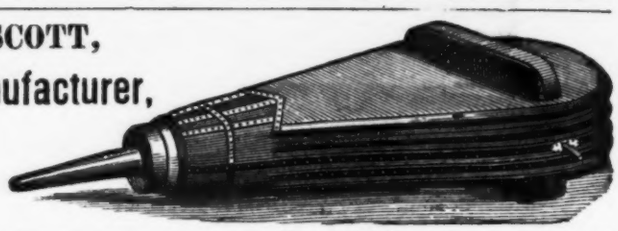

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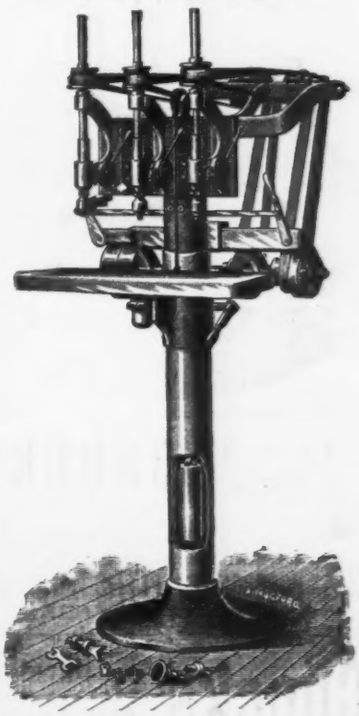

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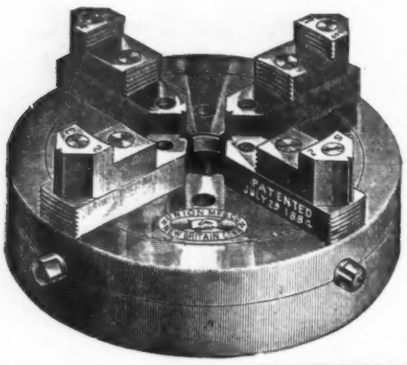

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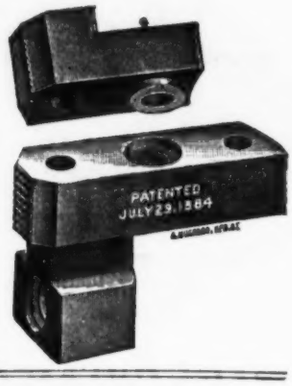

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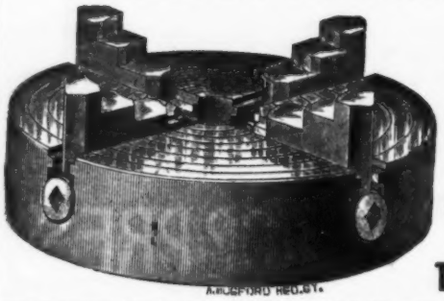

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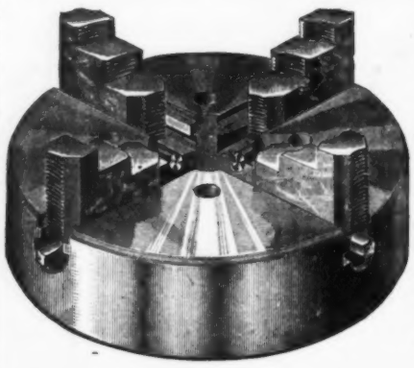

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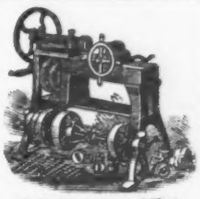

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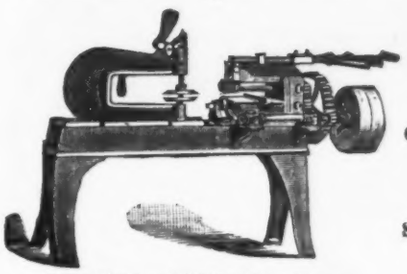

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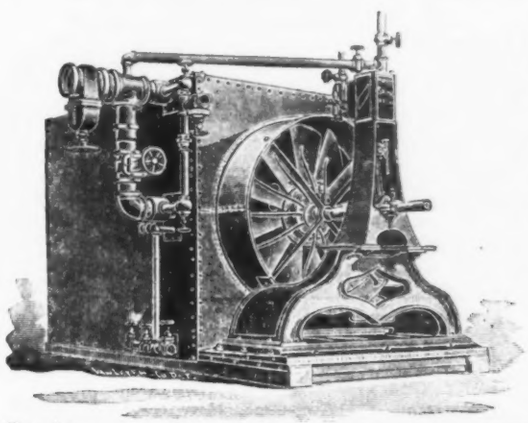

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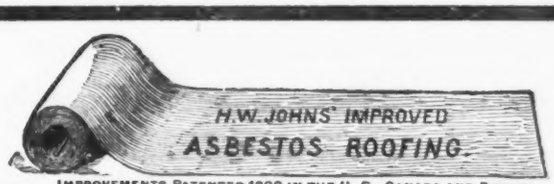

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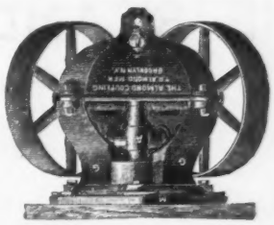

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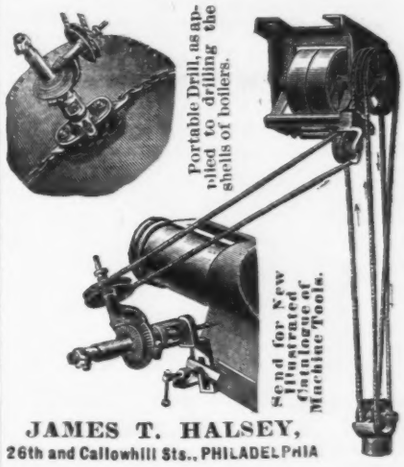

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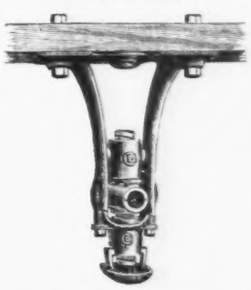

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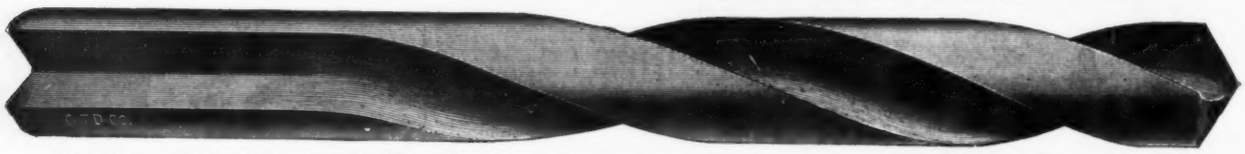

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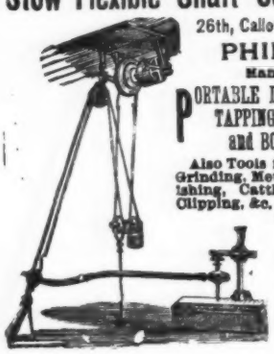

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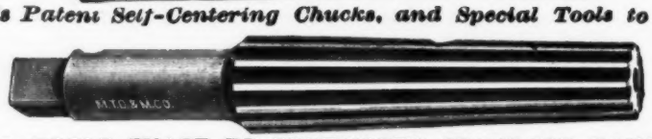

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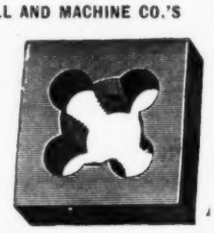

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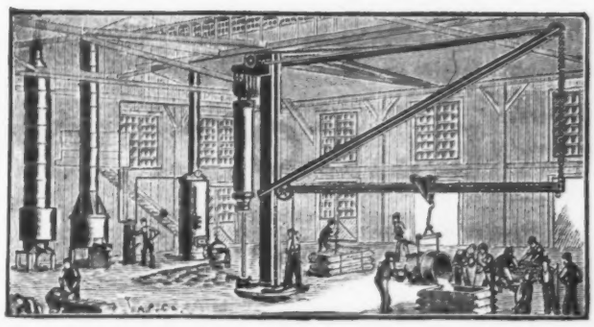

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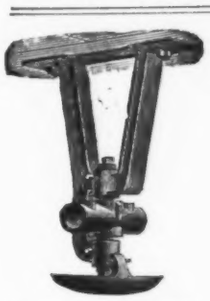

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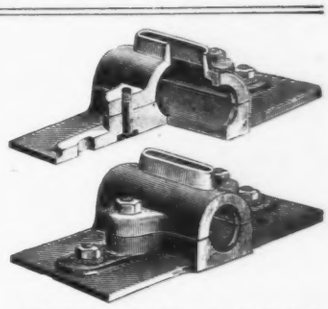

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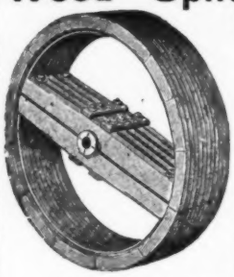

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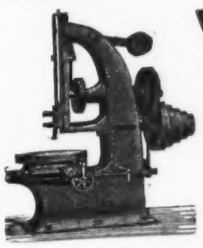

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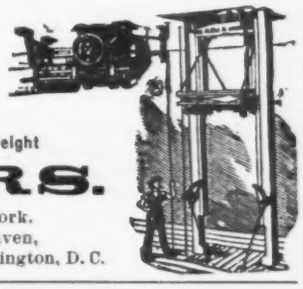

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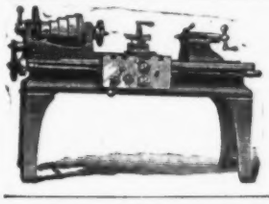

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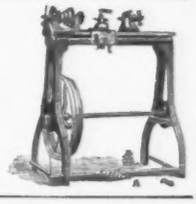

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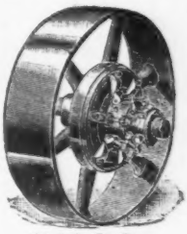

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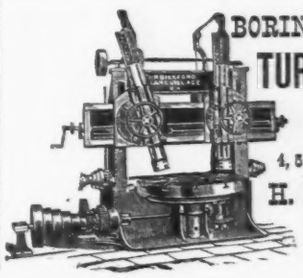

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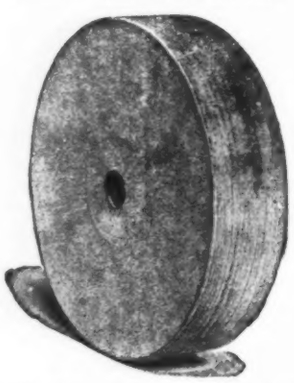

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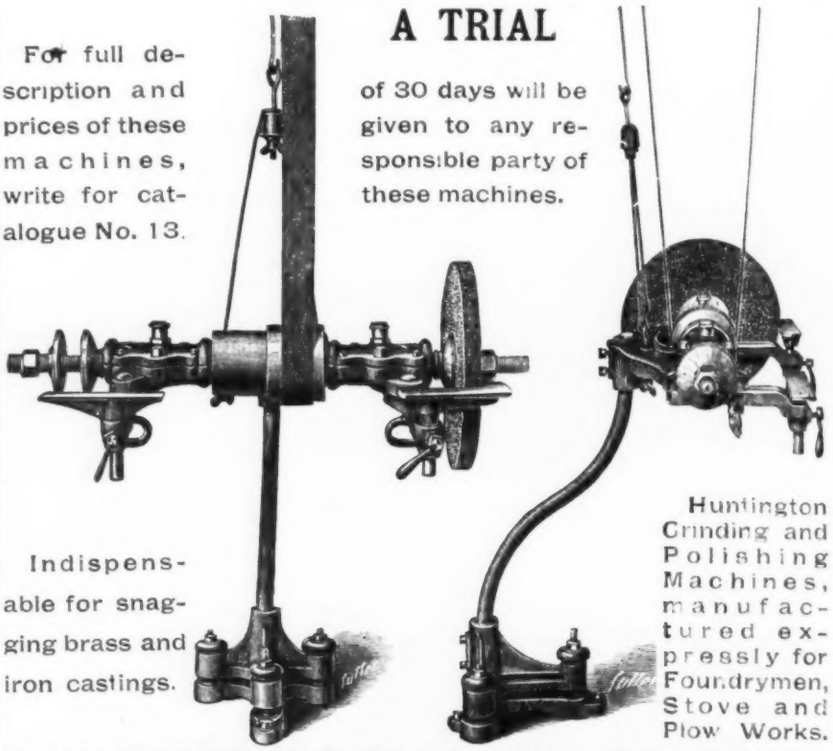

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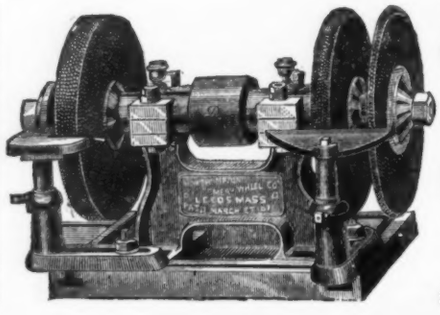

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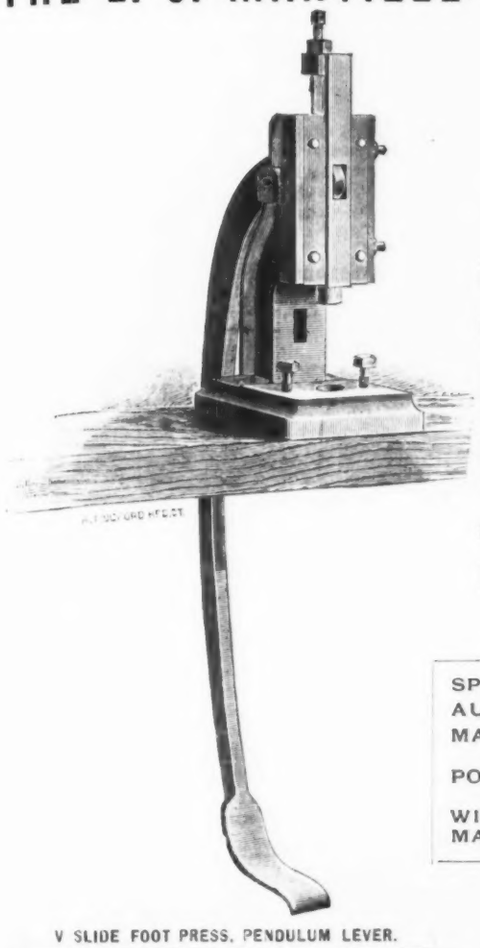

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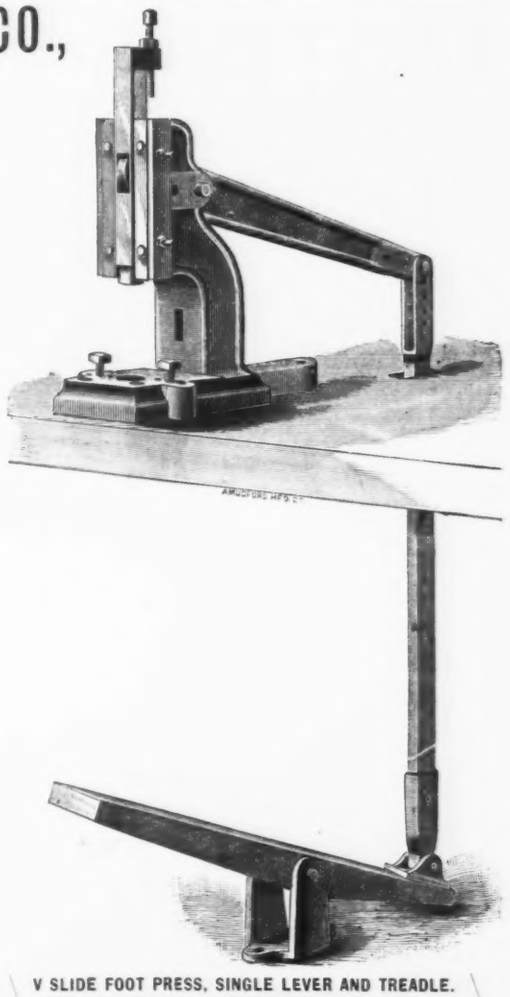

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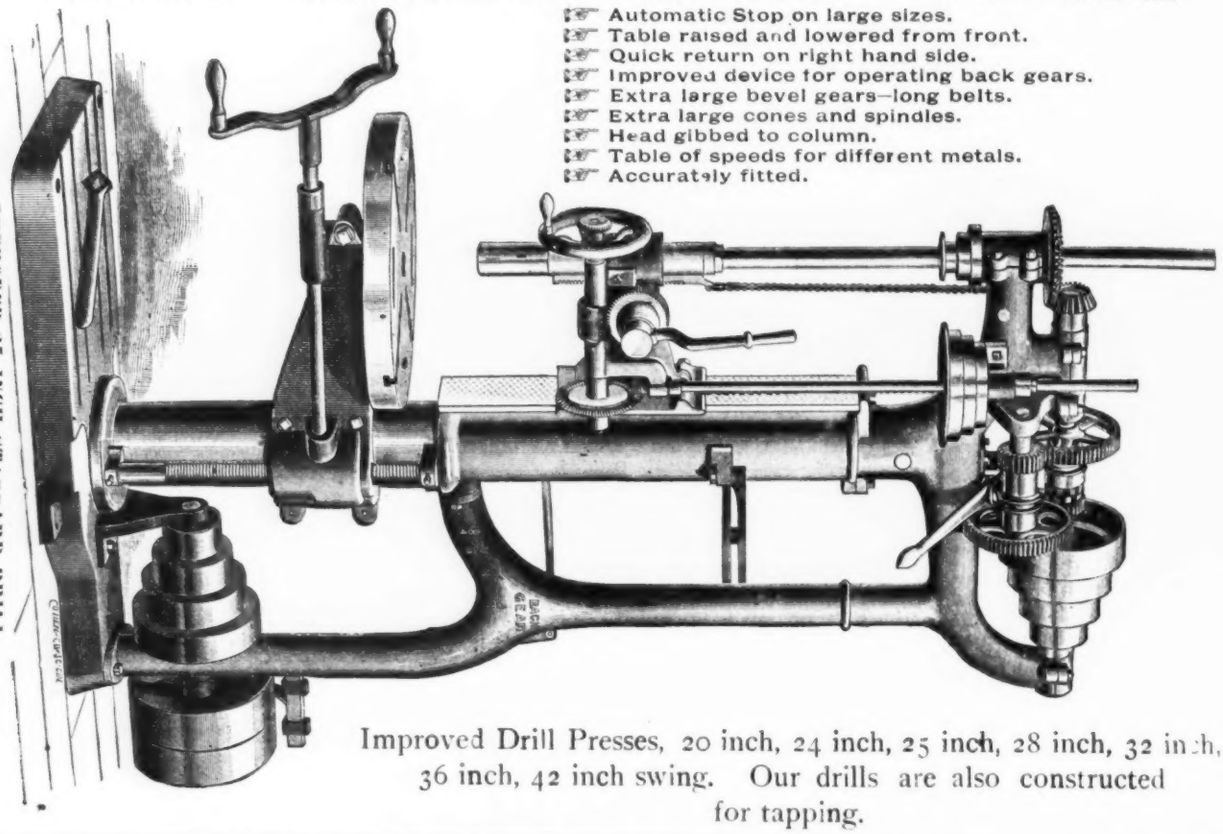

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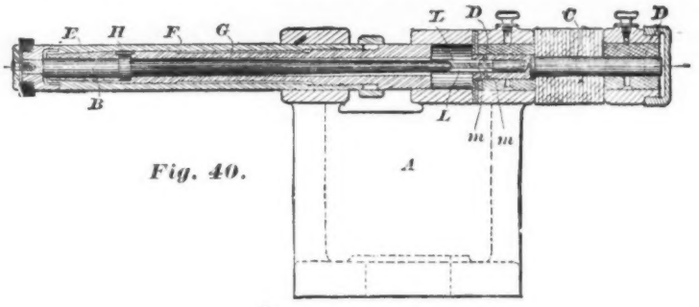

Fig. 40.

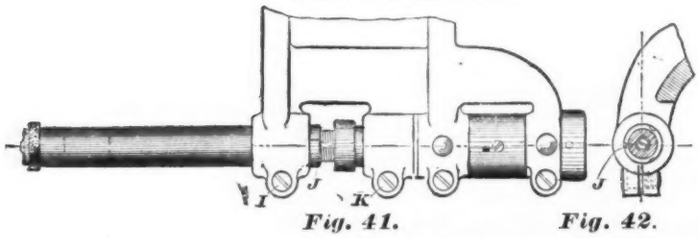

Fig. 41. *Fig. 42.*

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1 Engine Lathe, 10 ft. bed, 28 in. swing. Ames make.
1 Engine Lathe, 11 ft bed, 23 in. swing.
1 Engine Lathe. 10 ft bed, 24 in. swing. Old style.
2 Engine Lathes, 8 ft. bed, 18 in. swing. Good.
Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 475 lbs Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¼ in.
And various other tools.

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Second-hand Machinery.

Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

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Russell Automatic Engine 11 in. x 16 in.
Porter and Allen Automatic Engine 12 in. x 20 in.
Phœnix Automatic Engine 10 in. x 12 in.
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N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

14 in x 6 ft. Engine Lathe, screw front, double T rest.
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16 in. x 5 ft. Engine Lathe, screw back, double T rest.
16 in x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest
16½ in. x 6 ft. Engine Lathe, screw front, compound rest
17 in x 7 ft Engine Lathe, screw back, plain rest.
17 in x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment
17½ in x 4 ft. Engine Lathe, screw back, double T rest.
17½ in x 8 ft. Engine Lathe, screw front, elevating block.
17¾ in x 8 ft. Engine Lathe, screw front, double T rest.
18 in x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in x 10 ft. Engine Lathe, screw front, compound rest.
21½ in x 8 ft. Engine Lathe, screw back, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in x 10 ft. Engine Lathe, screw back, double T rest cross feed
22 in. x 10 ft. Engine Lathe, screw front, double T rest.
25 in x 14 ft Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No 1 shaft straightener, 3 in. hole through spindle.
35 in x 24 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1¾ holes with 12 in diam. 3-jaw combination chuck.
13 in x 6 ft. Hand Lathe.
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16 in. x 8 ft Hand Lathe.
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20 in x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill. 6 ft arm, plain top table.
Horizontal Boring Mill
25 in. x 25 in. x 8 ft Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 3 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter.

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31 N. Seventh St., Philadelphia, Pa.
(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

Two Standard Gauge Locomotives.

One 7 in. x 12 in. Saddle Tank, 3 ft. gauge Locomotive.

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Hoisting and Stationary Engines.

Ore Pans, Crushers, and Rolling Mill Machinery.

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The patents and machinery for making Corrugated Barbed Ribbon Fencing. Machinery in first-class order, will put on 120 barbs per minute. Everything in good shape.
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1 Shaper. Graham. First-class.
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1 36 in. Cupola, Blower, Rattler and Ladles. Good as new.
1 Power Chain Hoist, with Heavy Chain, complete.

Send for complete list of Machinery for prompt delivery.

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14 in x 6 ft. Bogert, H. S., Elevating Rest, Chuck fitted. A1 condition.
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22 in x 22 in. x 5 ft Pease, with 12 in. Chuck. Good as new
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1 15 in. x 5 ft. Am. Tool & Machine Co.'s Fox Lathe, square Arbor, compound Slide Rest, complete. Good as new.

Write for list of over 350 new and second-hand Tools in stock for immediate delivery.

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GREAT BARGAIN.

A full set of modern Automatic Cut-off Engine Patterns, with drawings, wood cuts and patent right to manufacture. These patterns are almost new, and were made by the finest workmen. Will be sold at a sacrifice if sold at once. Address

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Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.
The Lodge and Davis Machine Tool Co.,
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BARGAINS FOR CASH.

Write for Prices.

1 32 in. Lathe, 5 ft. bed.
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1 24 x 24 x 7 ft. Planer.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12½ x 24 " " "
1 8 x 16 " " "
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1 12 x 12 Vertical Engine.
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1 14 in. Lathe, 6 ft. bed.
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1 44 in. x 12 ft. " " "
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Vertical Boilers and Engines. Second-hand.
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1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

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One Sellers single head Driving Wheel Lathe, 78 in swing, 15½ ft. bed. Fine condition.
One Putnam Screw Cutting Engine Lathe. 36 in. swing. 12 ft. bed. A modern tool and in very fine order.
One Iron Planer, to plane 40 in wide, 36 in. high, 6 ft long.
One Fitchburg Planer, planes 32 in. wide, 32 in. high, 12 ft. long. In very fine order.
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One Brainard Milling Machine, No. 3, with vise.
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One Brown & Sharpe Universal Milling Machine. No. 3, complete with all attachments.
One Blaisdell Gear Cutter, will cut up to 40 in. diameter. In fine order.

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1 Hor. Corliss Engine, 23 in. x 48 in
1 " " " 10 in. x 24 in.
1 " Greene " 14 in. x 42 in
1 " Babcock & Wilcox Engine, 16 in. x 42 in.
1 " Fitchburg Landing Mch. Co. Engine, 16 in. x 30 in.
1 Locomotive, 8 in Cylinders.
1 Dredging Machine with Engine and Boiler.
Several Hoisting Engines, Boilers to suit.
For prices and particulars, write to
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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

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IRON T RAILS

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35 lbs. to the yard, also **Centre Bearing Steel Street Rails**, all fit to relay and in lots to suit. Apply to

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96 in. swing, 26 ft. Bed, Heads raised to swing 78 ft. A1
78 in. " 17 ft. " Screw Feed. Good.
50 in. " 30 ft. " For Rolling Mill Forgings. New
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32 in. " 12-14-16-18 ft. Beds. "
28 in. " 12-14-16-18 ft. " "
21 in. " 10 and 12 ft. " "
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16 in. " 6 and 8 ft. " " "
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15, 18 and 25 in. stroke. Crank Shapers, Steptoe, New.
20, 26 and 30 in. " Geared " " "
9 in.-16 in. " Crank " Good order.
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20 in.-22-24-28-30-36 in. Drills. New and Second-hand.
24 in. x 4 ft.-5 ft.-6 ft. Planers.
26 in. x 6 ft. "
36 in. x 10 and 12 ft. "
54 in. x 48 in. x 12 ft. " Hewes & Phillips, 2 heads.
54 in. x 42 in. x 24½ ft. "
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120 in. x 120 in. x 16 ft. " Betts, 2 heads.
100 H.-P. Westinghouse Standard Engine.
11 x 18 Horizontal Slide Valve Engine.
2000 lb. Bement Steam Hammer.
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1¼ and 1½ Bolt Cutters.
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Ingersoll-Sergeant Air Compressors.

1 14 in. x 18 in., Latest Improved Piston Inlet, used ten weeks.
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These Compressors with or without drills, receivers, &c.

1 Clayton Compressor, steam cylinder 10 in. x 10 in., air cylinder 12 in. x 14 in. Used six months.
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1 9 in. x 14 in. Locomotive, 36 in. gauge. Forney type Also a full line NEW BOILERS and ENGINES, READY FOR DELIVERY.

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LOOK AT THIS!

1 18 in. Three-high Muck Train.
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1 7 ton Iron Power Crane. Nearly new.
2 100 H.-P. Locomotive Boilers.
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All to be sold at once.

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1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

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Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No. 1 Wrought Iron Scrap. Correspondence solicited.

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We have in stock several sizes of
UNIVERSAL RADIAL

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Price $450 up,
That we wish to dispose of. Address
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BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

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12 Hopper Gondola Standard Gauge Cars, 50 000 lbs. capacity.
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One 30 x 30 x 10 ft. Pease Planer.
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FEED-WATER HEATERS.

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

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30 in. x 36 in. Horizontal Engine, Pool & Hunt make.
11 in. Shaft, 14 ft. Wheel in halves.
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18 in. x 12 in. x 18 in. Blake Pump, 8 in. Suc. B. L.
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72 in. x 18 ft. Horizontal Tubular Boiler, 4 in. tubes.
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IN GOOD CONDITION, CHEAP, IMMEDIATE DELIVERY

200 tons of 52 lb. Johnson Girder Rails.
200 " of 35 lb. Steel Tee Rails with Fastenings.
100 " of 35 lb. Iron Tee " " "
50 " of 20 lb. Steel Tee "
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I have also 5000 tons of second-hand Iron Rails now in use on narrow gauge road, weights 28, 35, 48, 52 and 56 pounds, with fastenings. Deliveries will be made September. October and November, which I will sell cheap.

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And offer as a consequence the best and cheapest machines in the market. By long experience in rebuilding old dynamos, we have learned of their faults, and can improve them; and it is known that old dynamos made new are better than new machines.

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Large lot of Loco. Boilers,
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Can furnish stacks, grates and all fittings to suit purchasers.

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FOR SALE.
SECOND-HAND

Street Rails

FIT TO RELAY.

DAN'L W. RICHARDS, & Co.
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Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 24 ylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P Locomotive Boiler, 80 lbs pressure. good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals
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CRANK and GEARED SHAPERS.

Write us for Bargains.

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PUMPS, ENGINES, MACHINERY.

1 No. 5 New Pulsometer Pump and Fittings.	$100
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Gas Engine and 5 Ceiling Fans	125
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30 in. Steel Exhausters	30
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A number of large Cog Wheels, Cast Iron Shafts and Bed Plates of Engines, cheap. Address

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Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¾ x 10 in., with Double Drums Triple Gear. Large stock of Rock Drills, team Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

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330 feet of bridge in 2, 3, 4 or 5 spans. Must be in good order and built to carry engine weighing 40 tons on 12 foot wheel base and train of 60,000 lbs. loaded Gondola cars.

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CORLISS
Automatic Engines.

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ELECTRIC LIGHT, HIGH SPEED AND SLIDE VALVE ENGINES IN FIRST-CLASS CONDITION FOR IMMEDIATE DELIVERY AT VERY LOW PRICES.

Corliss Engines, one each 30 x 60, 30 x 72, 32 x 48, 26 x 48, 23 x 36, 20 x 48, 18 x 48, 16 x 42, 14 x 48, 12 x 36. Buckeye Engines, one each 11 x 20 11 x 21, 14 x 24, 15 x 18. One pair of Woodruff & Beach Engines, automatic cut-off, 20 x 48. Slide Valve Engines, 10 x 16, 11 x 24, 8 x 8, 11 x 16, 12 x 24, 7 x 14 and 14 x16. Steel Boilers, assorted sizes, 50, 55, 60 80 and 100 H.-P., all insured for 80 pounds. 8 and 9 feet Fan Blowers, Ingersoll Rock Drills, Steam Pumps, Worthington, Blake, Cameron and Niagara. Iron Lathes, 14 in. x 5½ ft.; 7500 gallon tank and smaller sizes; Buckley and Jet Condensers; Hoisting Engines. All in good working condition. Send for catalogue.

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SECOND-HAND MACHINERY.

30 x 60 Corliss Engine.	12 x 24 McLaren Engine.
26 x 60 Corliss Engine.	12 x 12 Ball Engine.
26 x 42 Corliss Engine.	10 x 30 Novelty Engine.
24 x 48 Corliss Engine.	9 x 12 Stearn's Engine.
24 x 42 Wright Engine.	9 x 12 Bigelow Engine.
20 x 4 Slide Valve Eng.	25 H.-P Westinghouse Eng.
18 x 42 Brown Engine.	6 x 8 McDowell Engine.
18 x 28 Watertown Eng.	5 x 7 Payne Vertical Eng
16 x 36 Corliss Engine.	3½ x 5 N. Y. S. S. P. Co Vert.
12 x 36 Corliss Engine	6 x 3 Oscillating Engine.

8 and 16 x 16 Tandem Compound Propeller Engine.
4 and 7 x 5 Compound Launch Engine
2 and 3½ x 5½ Compound Launch Engine.

6 x 21 Loco. Boiler (2)	5 x 16 Hor Tub. Boiler
5 x 14 Loco Boiler	4½ x 14 Hor Tub. Boiler (4)
4 x 12 ½ Loco. Boiler	1½ x 18 Hor. Tub. Boiler
75 H.-P. Zell Water Tube Boiler.	4½ x 12 Hor. Tub. Boiler.

Pumps Hoisting Engines, Blowers and Dynamos. Berryman, Baragwanath and Wainwright Heaters. Pulleys, Shafting, Belting, Pipe and Fittings.

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Squaring Shears, 42, 48, 66 and 120 inches.
Power Punches, L. & A., Nos. 2 and 3 Very good.
1 Double Punch and Shear, punches 1½ x 1 in. Very good.
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1 Large Colliau Cupola with Blower. Good as new.
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1 100 H.-P. Babcock Tubular Boiler. A bargain.
1 Large Heater, for 12 in Steam Pipe. Cheap.
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Engine Lathes, 40 x 22 30 x 16, 26 x 20, 20 x 10.
Planers, 12 ft. x 5 ft. x 14 ft., 42 in. x 10 ft., 32 in. x 8 ft.
Drop Hammers, 700 and 1000 lbs.
New Upsetter and Header, upsets on end or any point on rod, made for ¾ rods and smaller. Send for circulars.
Pipe Threaders and Cutters, 2 and 4 inch.
Rolling Machines, 2 small Universal Light work.
Wood-Working Machinery of all kinds.
Write me before purchasing.

W. H. ROBERTSON, 65 S. Canal St., Chicago, Ill.

Relay Rails For Sale.

We own and offer for sale, in lots to suit, about 500 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler, eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.
For prices apply at once to

BRONSON BROS.,
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PUBLIC SALE OF STEAM FORGE AND FRANCHISES,
At Lewisburgh, Pa., June 23, 1892, at 1 P. M.

Complete steam forge works, slate roof buildings, 120 x 72 ft and 30 x 24; two latest improved Bement & Miles hammers, 2 cranes, complete telegraphs, No. 14 Buffalo Blower, 2 heating furnaces, 100 H. P. boilers, 50 H.-P engine, double header cut-off, 22-foot lathe, centering and emery machines, full set Fairbanks scales, R. R. and wagon scales, full sets tools, dies, &c., for all manner of work, sidings of two railroads and flowing water and borough system of buildings Terms, 20 per cent. cash, 30 per cent., Sept. 19 and balance April 1, 1893. For information address J. T. BAKER, Lewisburgh, Pa.

FOR SALE.

2 35 H.-P. Hor. Engines. New.
5 3 and 5 H.-P. Ver. Engines. New.
4 Chucks. New.
500 8 in. and 9 in. Cast Iron Truck Wheels.
2 Centrifugal Pumps. New.
20 Barrels Machinery Oil, 27 cents per gallon. Will send barrel on trial. If not satisfactory return and will pay freights.
24 Tanks, 2d, different sizes.
10 Pumps, 2d, different makes and sizes.
80 Tons new 16 lb. Rails.
2 Rock Crushers. New.
2 Bolt Headers, new. Guaranteed.
1 Electric Combination Car. New.
60 Dynamos new, at price of 2d.
3 Carloads Street Railway Chairs, new, 12 cents each to close them out.
6 Otto Engines, 2, 7, 10 H.-P.

H. H. MANSFIELD,
126 Liberty St., New York.

TO MANUFACTURERS.

The owner of a valuable Rolling Mill property could spare about 200 square feet of land with water power, and would lease or make other arrangements with suitable parties for its occupancy. The location, within 40 miles of Philadelphia, is in all respects a desirable one; population about 4000, from which an unusually intelligent class of labor could be secured.

For further particulars address

"K. C.,"
Box 1086,
Philadelphia, Pa.

FOR SALE CHEAP.

Sheet Iron Mill, located in the Natural Gas Belt. Mill now running. Gas is assured for a long period.

Address
"W.,"
care of National City Bank, Cleveland, O.

2D-HAND RAILS FOR SALE.

1000 tons Steel Rails, 60 lb. section, in first-class condition.

WM. H. PERRY & CO.,
Providence, R. I.

FOR SALE.

A Tack and Small Nail Factory, consisting of ten Reed Machines with automatic feeders; six Blanchards; two Wire Nail Machines, one large, one small; two Double-Point Tack Machines; one Glazier-Point Machine; one Heel Nail Machine; one Chopper, 30-inch knives, one Slitter; two Tumblers; two Grindstones; Engine Lathe, 15-inch swing; Drill Press, 20-in swing. Also all shafting, pulleys, belting and necessary appliances for running the plant. Located within 100 yards of a rolling mill that will furnish material very low. This machinery is practically new. Patterns for each machine. The whole will be sold at a very low price.

THE STANLEY TACK WORKS,
Belleville, Ill.

WANTED.

One new or second-hand Crane of about 3 or 4 tons capacity, iron or wood frame. Must be in good condition. Size of mast 20 feet. Size of jib 20 feet. Price must be low if purchased.

Address
"CRANE," No. 69,
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

A modern first-class, second-hand Horizontal Engine, 40 to 60 H.-P., spot cash.

M. B. SCHENCK & CO.,
Meriden, Conn.

For Sale.

Set of Tinner's tools, lot of Hardware Boxes, Wrought Iron Shears made by the Cleveland Hardware Company and a National Cash Register. For further particulars, address

CRAWFORD BROTHERS,
Sterling, Ill.

FOR SALE. WELL EQUIPPED

Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

P. O. BOX 1119, New York.

SPECIAL TO MANUFACTURERS!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations 170 x 900 feet; N. Y. C. R. R. switch full length of property. I will advance one-half money necessary for erection of permanent buildings.

E. G. FELTHOUSEN, Room 42,
534 Main St., Buffalo, N. Y.

FOR SALE CHEAP.

100 tons of Floor Plates, good and strong, sizes 2 x 4 and 2 x 6 feet, 1 inch thick. New, never been used. Made of best foundry iron; no cheap scrap. For prices, address

"FLOOR PLATES,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

To exchange stock in an Electric Light Company, now running, with a good trade, for one 24 inch swing or larger lathe, new or second-hand, in good condition, to take in about 8 or 10 feet between centres. Address "ELECTRIC," office of *The Iron Age*, 96-102 Reade St., N. Y.

RAILS. RAILS. RAILS.

Attention, Contractors and Builders.

We are prepared to furnish on short notice Steel Rails cut to any length.

BLOCK-POLLAK IRON CO.,
69 Commerce Building, 14-16 Pacific Ave.,
Chicago, Ill.

CONTRACTS WANTED.

A high class machine shop having surplus equipment solicits contracts for medium or high class work. Switch into shop, traveling cranes, best shipping facilities. Location, Ohio. Address

"W. A. H.,"
office of *The Iron Age*, cor. 4th and Main Sts., Cincinnati, O.

FOR SALE.

A fully equipped Machine Shop in Chicago, with a good business. Ground and building, or so much as may be required, can be leased if desired on favorable terms. Address

"MACHINE SHOP,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

FAIRBANK'S TRACK SCALE FOR SALE.

60 tons capacity. Nearly new. For immediate removal. At a bargain, cash or trade.

MATTHEW GILL, JR.,
308 Walnut St., Philadelphia.

WANTED.

One second-hand Crane, 10 or 12 tons capacity, made of structural iron or steel, of the following dimensions: Mast 26 feet, jib 27 feet, with racking carriage on top. Name lowest price for cash. Address

"CRANE,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

TWO CORNISH PUMPS WANTED.

Second-hand preferred.
Water Cylinder, 10 or 12 inches diameter.
Not less than 3 foot stroke.
Must be outside-packed plunger.
Send price, dimensions and full particulars to

NEW RIVER MINERAL CO.,
Ivanhoe, Wythe Co., Va.

A NEW COAL FIELD AND TIMBER DISTRICT.

The **OHIO EXTENSION** of the **NORFOLK & WESTERN RAILROAD** penetrates one of the most valuable coal and timber districts in the United States. The line of this extension is 193 miles in length, from Coal Grove, Ohio, via Kenova, W. Va., to Elkhorn, W. Va., of which 54 miles, to Dunlow, W. Va., is now opened for business and the entire line is under construction and will be completed early in the fall of 1892. It passes through virgin country abounding in gas, splint, cannel, steam, coking, and domestic coals and fire-clay; chestnut-oak, white-oak, beech and poplar timber. Those looking for advantageous sites for the location of saw-mills or tanneries and establishments for the manufacture of furniture, wagons, agricultural implements, wood-pulp, fire-brick, or manufactured iron articles, should investigate the resources of this new field. The new town of Kenova, W. Va., offers many advantages for the location of manufacturing establishments, also the territory opened up by the Norfolk & Western Railroad on the north bank of the Ohio River, between Kenova, W. Va., and Portsmouth, Ohio. For the manufacture of finished iron articles the district offers unequaled advantages, with supply of coal and Pocahontas coke on short hauls, and with the blast furnaces of the Ironton, Hanging Rock and Ashland district in close proximity. Favorable freight rates made upon raw materials to all manufacturing establishments on this line.

For further information as to freight rates, maps, names of parties to whom application should be made for coal leases, &c., apply to

JOHN J. ARCHER,
Div. Freight Agent, Columbus, O.
or CHAS. G. EDDY,
Vice-President, Roanoke, Va.

BRANFORD, CONN.,

With its beautiful harbor and its river, navigable for three miles, is one of the finest towns in the country to live in or to work in; special inducements will be offered by the Board of Trade to parties who contemplate establishing or relocating manufacturing plants; correspondence solicited.

CHARLES A. HOADLEY,
Corresponding Secretary.

Manufacturing Plants

WANTED.

Lemont, Ill., desires the location of factories and manufacturing industries, and is prepared to offer inducements for the locations of such establishments. Cheap coal, good R. R. and Canal shipping facilities, &c. Address

H. S. NORTON,
Box No. 2, Lemont, Ill.

FOR SALE.

Sealed proposals will be received until noon of June 15, 1892, by W. F. Kyle, Manager for the Trustees of the Fieldhouse & Dutcher Mfg. Co., 30 & 32 West Monroe St., Chicago, Ill., for the sale of the entire property of said Company, including accounts; or for the sale of the merchandise, machinery and fixtures, in whole or in part.

The amount of sales in 1890 and 1891, combined, exceeded $800,000. The business shows a considerable capital over liabilities.

The Trustees reserve the right to reject any or all proposals. The books, accounts, merchandise and other property will be exhibited to any responsible persons who may wish to submit proposals for purchase. Blank forms will be furnished for proposals. Proposals may be sent to Mr. W. F. Kyle at the above address, and will be forwarded to the Trustees at New York for acceptance or rejection by June 20.

The Trustees of
FIELDHOUSE & DUTCHER MFG. CO.

FREE SITES & BUILDINGS

FOR LEGITIMATE MANUFACTURERS!

DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points.

ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY

ADDRESS

F. S. MORDAUNT & Co.

REFERENCES GIVEN UPON REQUEST.

CHAMBER OF COMMERCE BLDG, CHICAGO

THIRD NATIONAL BANK BLDG, CINCINNATI, O.

Great Inducement

For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

For Maps and Full Particulars, address,

B. F. POPPLE,

Suburban Traffic Agt., 317 BROADWAY, N. Y.

OGDEN, UTAH,

Offers the best location on Earth and $100,000 for an iron works; $50,000 for a reduction works for silver-lead ores; $50,000 for stock yards; $25,000 for woolen mills; $10,000 for a paper mill; $5000 for a pottery; $5000 for a tannery $5000 for glass works.

—OGDEN—

Has Natural Gas, Mountains of Coal and plenty of Iron and NERVE. We mean business. No dead-heads or adventurers need apply.

SECY. CHAMBER OF COMMERCE,
Ogden, Utah.

FOR SALE.

Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address

J. P. WILLIAMS,
Lynchburg, Va.

FOR SALE.

A thoroughly well assorted stock of Shelf Hardware, House Furnishings, Stoves, &c., located in a growing and thriving Illinois town of 25,000 inhabitants; stock $8,000 to $10,000. The town is noted for its manufactures and is surrounded by the finest agricultural lands in the State. The business well established and thriving. Address "LIGHT,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

Machine Shop, Iron Foundry, Pattern and Forging Shops.

Concern having well equipped and thoroughly organized departments as above, want specialties to build.

Facilities for fair, good and high grades of quality and medium light to heavy weights Would buy patents.

"W. SPECIALTIES,"

Office of *The Iron Age*, 96-102 Reade Street, N. Y.

HARDWARE AGENCY WANTED.

Have an established Manufacturers' Agency of 12 years' standing and want a large manufacturer of general hardware to represent in this market. Am a thorough hardwareman.
Address

"HARDWARE,"
1117 Chamber of Commerce, Chicago.

MALLEABLE IRON PLANT FOR SALE or TO LET.

Best Location in Albany, N. Y.
Suitable for any Iron Manufacturing Business.
1 Air Furnace. - 2 Cupolas. - 3 Kilns.

The property of the Capital City Malleable Iron Co. (now occupied by the Troy Malleable Iron Co., whose lease expires October 1, 1892). Substantial five story brick building with high trussed roof, building attached covering entire block bounded by Fourth avenue, Broadway, Church and Vine streets, and one-half block adjacent property, with stable, coal sheds, &c

Two hundred feet from dock, with West Shore and D. and H Railroad track alongside of building Fitted out with first-class steel boiler, engine, shafting and Otis steam elevator. Buildings in excellent repair and machinery in the best running order. Apply to DAVID F. SKINNER, President 199 Broadway, or E. C. SKINNER, Secretary, on the premises.

FACTORY FOR - SALE - CHEAP.

In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft. x 100 ft., with 30 H.-P. Engine and Boiler and 70 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

W. C. MEEKER,

Henderson St., Jersey City.

FOR SALE.

at Rye, N. Y.

The stock, tools and buildings of James L. Howard's hardware, house-furnishing, tinning and plumbing business. To the right parties this is a chance seldom offered: sickness of owner reason for selling. Inquire on premises or of

GEORGE HOWARD,
Mt. Vernon, N. Y.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.
Send for Catalogue,

143 Chambers St., New York.

THE LIST OF

Hardware Dealers

TO WHOM I MAIL

CIRCULARS

EMBRACES THE NAMES OF OVER

5000

First-Class Houses,

COVERING THE ENTIRE

UNITED .·. STATES.

Can't I Do BUSINESS with YOU?
Write for my scheme.
First-class References as to my ability and manner of doing this work. Address
"K. R. P.," Box 526,
office of *The Iron Age*, 96-102 Reade St., N. Y.

BICYCLES.

A manufacturing company with one of the best equipped shops in New England is prepared to accept contract for the manufacture of 1000 or more Safety Bicycles for the season of 1891. Have had experience in this line and are prepared to make satisfactory arrangement with right parties desirous of putting a bicycle on the market. Address "BICYCLE 1893," office of *The Iron Age*, 96-102 Reade St., New York.

WANTED.

Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

GAYNOR & MITCHELL MFG. CO.,
Bridgeport, Conn.

WANTED.

To furnish reasonable estimates on specialties in light metal work to order.
CLARK & COWLES, Plainville, Conn.,
Manufacturers of Clock Trimmings, Rivets, Springs, &c.

Business Chance.

Good complete Retail Hardware Stock for sale in city of New Haven, Conn., one of the best localities in the State for the business. Value of stock $15,000 to $20,000. Inquire "CONNECTICUT," Box 21, office of *The Iron Age*, 96-102 Reade St., New York.

IF FROM ANY CAUSE

You have goods to offer at specially low figures for SPOT CASH, that you wish disposed of without danger of interference with your regular trade address

W. M. CALDWELL,
Agent for the sale of SPECIAL LOTS,
75 Chambers St., New York.

World's Fair Exhibitors ATTENTION.

Do you desire the services of a reliable company to receive, install and superintend your exhibit during the **World's Columbian Exposition?** We can save you money. Unexceptional references. Write for pamphlet and particulars.
CHICAGO COMMERCIAL COMPANY.
501, 502, 503 Home Insurance Bldg., Chicago.

Collections?

We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.
WHOLESALE
HARDWARE AUCTIONEERS,
13 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE TO JAIL BUILDERS.

Sealed bids will be received at the office of the County Clerk of Monroe County, Michigan, at Monroe, Michigan, until 1.30 P.M. of Wednesday, June 29th, 1892, for the erection and completion of a county jail, to be built upon a site now owned by said county, upon which is now a Sheriff's residence, to which is to be attached the jail structure now advertised for.

Each bidder shall submit with his bid complete plans and specifications of the building which he proposes to erect, which shall include all necessary steel and iron, cells and all equipments and attachments to render the building complete and ready for occupancy.

The bids shall be for the entire work as a whole, covering all plans furnished, the erection and completion of the same ready for occupancy with all the cells and appurtenances complete, and all expenses of whatever name and nature.

No bid will be considered which exceeds the sum of eight thousand dollars ($8000)

The board reserves the right to reject any and all bids. The successful bidder will be required to give bonds in the sum of the contract.

Bids will be opened by the Board of Supervisors on June 29th, 1892, at 1.30 P.M.

Bids should be sealed and endorsed "Proposals for Jail," and addressed to the undersigned.

C. H. CALDWELL,
County Clerk, Monroe, Michigan.

MANUFACTURERS.

I am after "SPECIALTIES" of all kinds, particularly small, light articles that can be carried by traveling men as a "SIDE LINE," and am prepared at all times to place such goods upon the market in the hands of good men who will give them a share of their labor and attention. I also "CIRCULAR" the trade where desired, reaching the best class of Hardware trade in the entire UNITED STATES, or any State or combination of States. MAIL me sample of your article to be sold, write me *full* particulars in regard to *prices, terms*, freight, territory to be covered or exempt, &c., &c., your ideas as to seller's recompense, commission or salary, and how much in either case. Yours will have careful consideration and prompt reply.

Save my Address, for reference.

GEO. L. SMITH,
Box 414, Syracuse, N. Y.

I AM advertising for and also by personal correspondence reaching every manufacturer of "SPECIALTIES" in the country light salable articles that you can carry as "SIDE LINE," so that I expect to have at all times several good sellers that you may have your choice of. Send me your permanent address and I will write you full particulars of any new and desirable seller that I may have. You know there are many such continually coming to the front which it does not pay the manufacturer to put men on the road with. Just where to get the right men, and how, is a question with them many times. Of course most of these things pay commission, but I know of several parties who are paying stated salaries to good men to help introduce their goods. It won't cost you but TWO CENTS to give me your address, together with territory covered line you are selling, and any other points that may be of interest. Your communications would be treated at all times as strictly confidential.

STANLEY G. LEONARD,
Box 425, Syracuse, N. Y.

FOR SALE

STOCK OF HARDWARE in the City of Rochester, New York. One of the best locations in the City. Established in 1870; low rent; will invoice about $6 000. A splendid opportunity to purchase an old-established business. A close inspection invited. Address

"ROCHESTER,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

Agency Wanted.

Man of 10 years' experience in selling staple lines of hardware and specialties wants to represent Manufacturers in Chicago and Western Territory on commission, or salary if preferred. References furnished. Address

"HARDWARE AGENCY,"
office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

BEING desirous of engaging in the manufacture of our spring tooth cultivator, I will *sell cheap* my entire plant and stock of Hardware, Stoves, Tinware and implements. The building was constructed for the business and is as well arranged as any in the country, and located on the main line of Pennsylvania R. R. In short, it is one of the most desirable country locations for the business in Pennsylvania. For further particulars, address

LEWIS COATES,
Christiana, Lancaster Co., Pa.

"IDEAS for Hardware Merchants."

JUST PUBLISHED.

PRICE $1.00, POSTPAID.

This novel book is the only book ever written especially for Hardware men, and every Hardware Merchant will find it of decided help and of intrinsic value. It tells **How to Advertise** a Hardware Store. **How to Dress** a Hardware Store Window. **How to Select** seasonable Goods and **How to Display** them to best Advantage. **How to Make** a Success with Hardware. **How to Compete** with "Department Stores." **How to Turn** a Credit Business into a Cash Business. **How to Avoid** Bad Debts and Increase Trade. **How to Secure** Low Quotations from Jobbers and Manufacturers. **How to Arrange** the Fixtures in a Hardware Store. **How to Treat** and Manage Clerks. **How to Keep** your Accounts with the least labor. **How to Systematize** your business and arrange its Details. **How to Arrange** Price Lists. **How to Meet** close Competitors and **How to be Enterprising. How to Properly** proportion Store Expenses, and thousands of practical hints for Hardware Merchants.

"Ideas for Hardware Merchants"
Sent postpaid upon receipt of price.

D. T. MALLETT,
P. O. Box 108, New Haven, Conn.

An Exceptional Business Opportunity. A good business man with $3000 or more capital wanted to take active part in the manufacture of hardware; several of the lines patented; has been established five years. The reason is that trade is demanding more goods than present means can supply. Address "H. M.," Box 616, office of *The Iron Age*, 96-102 Reade St., New York.

ROSE POLYTECHNIC INSTITUTE.

TERRE HAUTE, INDIANA.—A SCHOOL OF ENGINEERING. Well endowed, well equipped departments of Civil, Mechanical and Electrical Engineering, Chemistry, Drawing. Extensive Shops and Laboratories. Expenses low. For catalogue address H. T. Eddy, Pres.

THE ROBERT W. HUNT & CO.

Bureau of Inspection, Tests and Consultation.

Rails, Splices and Cars. Analytical and Physical Laboratories. Examination of Iron and Steel Works and advice on Processes.

General Office: The Rookery, Chicago. Branch offices: Hamilton Building Pittsburgh; 328 Chestnut St., Philadelphia 80 Broadway New York.

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by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self Proving Balance locates every error. Send 2-cent stamps for illustrated 16-page pamphlet

WOLCOTT & WEST, SYRACUSE, N. Y.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

FIRST-CLASS Experienced Salesman; one familiar with railroad trade, to sell high grade material; bar iron and plates. Address, confidentially, "W. B.," office of *The Iron Age*, Bank of Commerce Building, St. Louis, Mo.

A WESTERN TRAVELER, familiar with builders' hardware and fully "up" on Locks, not less than 30 years old and having first-class references as to ability and experience in marketing such goods, can secure a connection with an old established factory by addressing "WORKS," office of *The Iron Age*, 96-102 Reade street, New York.

SALESMAN visiting retail hardware trade in Maryland, Virginia, North and South Carolina and Georgia to take as side line on commission, first-class staple article, largely in use; experienced hardware salesmen can make good pay; first-class men only need apply. Address, with full name and references, "GOOD LINE," Box 62, office of *The Iron Age*, 96-102 Reade St., New York.

FIRST-CLASS Salesman acquainted with the hardware, grocery and woodenware jobbing trade and large buyers in general stores, to sell a line of specialties; must furnish first-class references; state experience and salary required "SALESMAN," office of *The Iron Age*, 59 Dearborn St., Chicago.

SALESMEN visiting hardware and house-furnishing trade, to introduce rapid selling novelty in cooking utensils, on a commission; experience and references required. TRUMBULL SPECIALTY CO., Warren, Ohio.

SALESMEN to carry Shimer Patented Hollow Handle Post Spade as side line on commission. L. & R. WISTER & CO., Philadelphia, Pa.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

BY YOUNG MAN (26), college graduate, Junior Member American Society of Mechanical Engineers; machine shop practice, three years draftsman, technical school knowledge of chemistry; opening in any part of the country where there is chance of advancement. Address LOCK BOX 606, Andover, Mass.

A LIVE MAN of 45, experienced accountant, business manager and skillful financier, desires an engagement for factory or general business management, with a concern in the metal manufacturing line, that is in it to stay; New York or vicinity preferred. Address JOHN ANDERSON, No 100 Henry st., Brooklyn, N. Y.

A YOUNG MAN with nine years' experience in general and builders' hardware, acquainted with builders and architects, wishes a position as salesman; best of references. Address "B. and A.," Box 616, office of *The Iron Age*, 96-102 Reade St., New York.

TWO YOUNG Hardware men, through 17 years' experience well acquainted with German, English and domestic goods, wish to represent in Chicago manufacturers and importers of hardware and cutlery. We will sell your goods and do honest work in the World's Fair City, if you can deliver the goods and quote prices. Address "M. & H.," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

BY AN ENGLISHMAN (44), an engagement in the states as foreman molder; six years' charge of men; well up in engine and machinery molding both in loam and sand; good references and testimonials. Address W. M. STEVENS, 127 Mortimer St., Trowbridge Wilts, England.

BY A TRAVELING Salesman desiring to make a change the first of the year, to represent a manufacturer of machine tools or a large dealer in machinery supplies; have had 15 years' experience as a machinist with two (2) years' experience upon the road. Address "MACHINE TOOLS," office of *The Iron Age*, 96-102 Reade St., New York.

SHIP AND MARINE ENGINE BUILDERS.—Engagement wanted by mechanical engineer (39), unusually well up in steam, steam engines, boilers, &c.; thoroughly practical designer and constructor, good estimator and mathematician, unexceptionable references for character and ability; command of French and Spanish; looks for permanency with prospects of advancement on merit. "MARINE," Box 69, office of *The Iron Age*, 96-102 Reade St., N. Y.

EXPERIENCED and successful Traveling salesman of good address, well acquainted with hardware jobbers, railroad trade, implement and machine manufacturers of Chicago and tributary territory, desires the representation of some line where attention and vigorous work will be appreciated; small salary and commission preferred; first-class references. Address "W.," office of *The Iron Age*, 59 Dearborn St., Chicago.

TECHNICALLY EDUCATED gentleman, with vast experience in technical and business matters in this country and Europe, and thoroughly familiar with three modern languages, who can produce the very best of references, desires a position in Europe as agent for American business house or manager of estate. Address "EUROPE" office of *The Iron Age*, 220 South Fourth street, Philadelphia, Pa.

POSITION as Superintendent is desired by a practical man by July 1 in manufactory making locks and builders' hardware a specialty; 25 years' experience; can give satisfactory references as to ability to handle men and material economically; understands the business in all its branches; salary moderate. Address "H. L.," Box 616, office of *The Iron Age*, 96-102 Reade street, New York.

BY THOROUGHLY COMPETENT open-hearth Melter; five years' practical experience; desires to correspond with parties wishing to engage a capable man. Address "P. M.," office of *The Iron Age*, Room 509, Hamilton Building, Pittsburgh, Pa.

BY A MECHANICAL Engineer and machinist has had charge of work for 15 years past; had experience with wire rope traction, engine, pump and general machine work, including experimental and model work, drawing, designing &c.; Brooklyn or New York preferred. "H.L." Box 69 office of *The Iron Age*, 96-102 Reade St., New York.

I AM 29 years of age, married; have been ten years with present employers (wholesale hardware), four years as head bookkeeper; have first-class references and would like situation where a good business training will be of service. Address FRED. H. ROSS, 97 Erie avenue, Hamilton, Canada.

AS SUPERINTENDENT of an iron or steel mill; have had over 20 years' experience in erecting and operating both; can furnish very best of references as to ability to plan, erect and operate; would accept position as assistant superintendent in large mill. Address "DRAKE," office of *The Iron Age*, 96-102 Reade street, New York.

A COMPETENT Patent Solicitor and searcher in testing validity of patents offers his services to a substantial firm or corporation, preferably in New York City, to attend to their patent affairs and, as time permitted, to otherwise confidentially assist in business management. Address "GOODWIN, office of *The Iron Age*, 96-102 Reade street, New York.

AN AMERICAN GENTLEMAN, who will reside in the principal European cities, after July 15th, for the period of one year or ten, desires to act as agent for the sale of American products; the best of American references as to financial responsibility, character and ability will be furnished. Address "EUROPEAN," Box 69, office of *The Iron Age*, 96-102 Reade St., New York.

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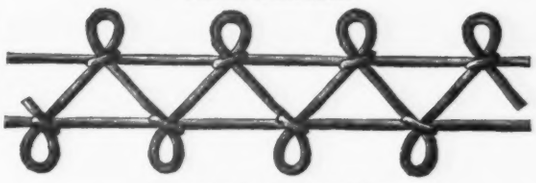
Strong.  Durable.

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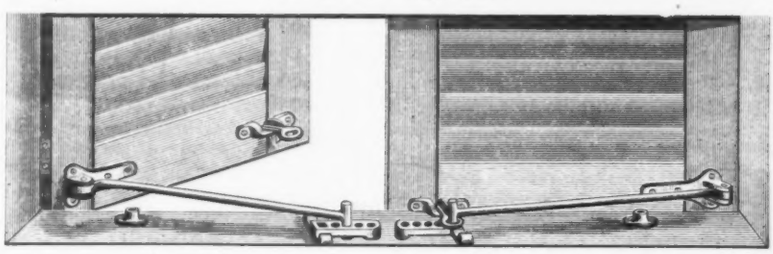

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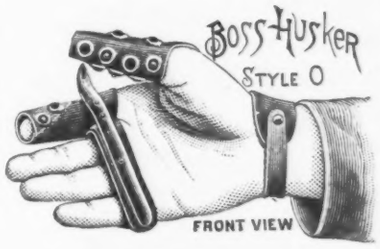

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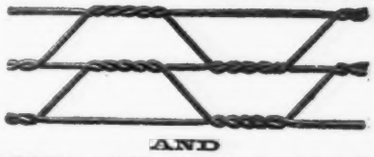

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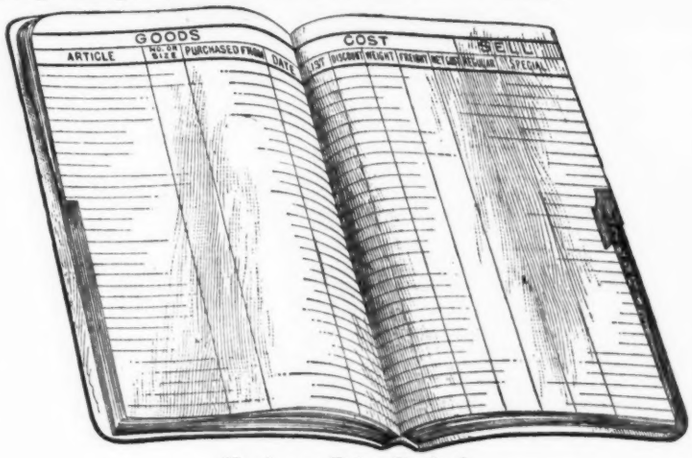

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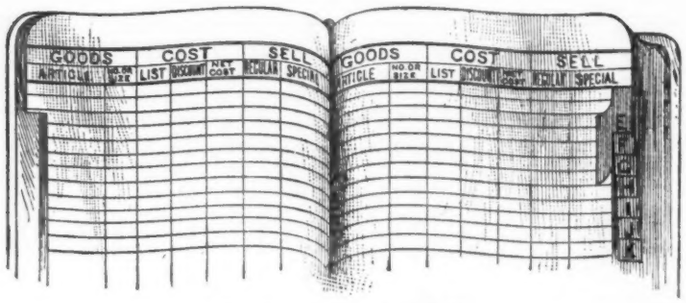

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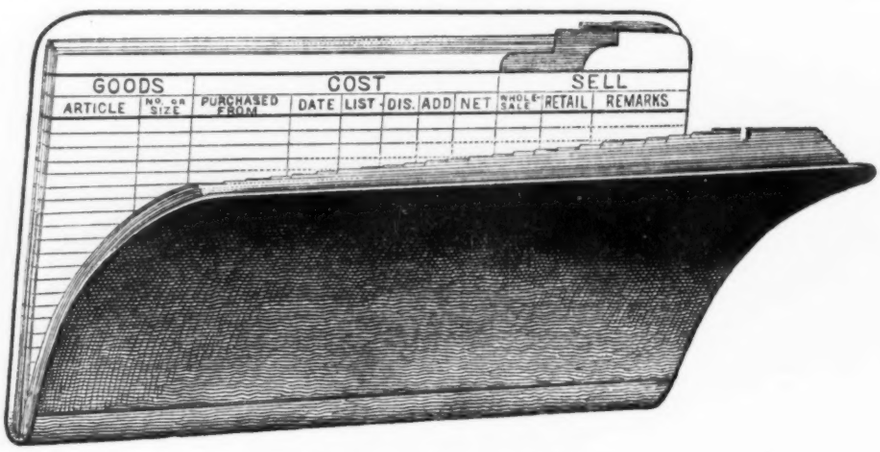

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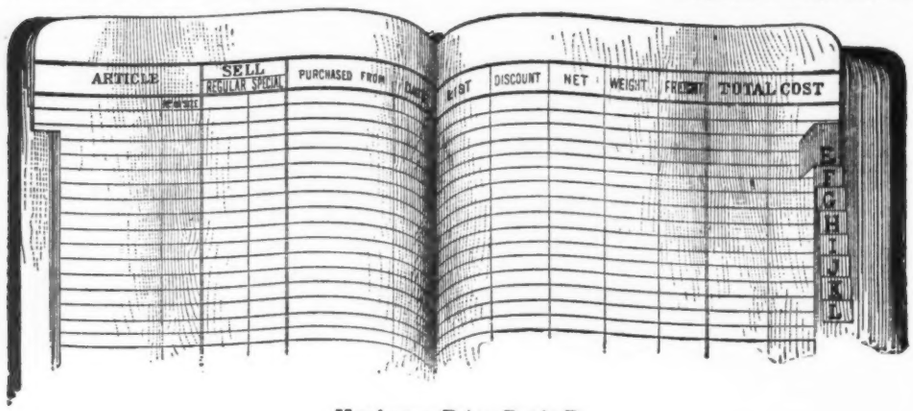

Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction. Size 5¼ x 8 in.: grain seal leather.

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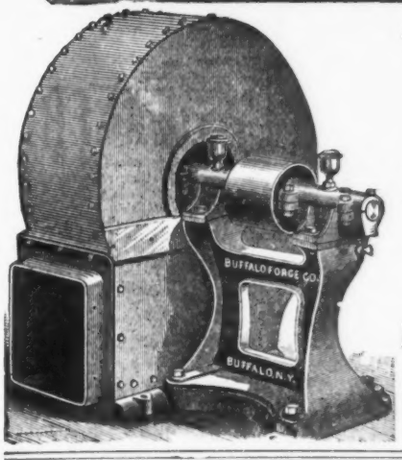

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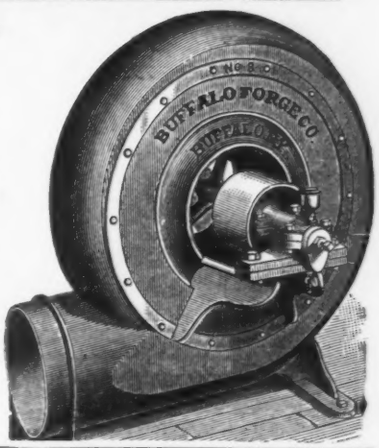

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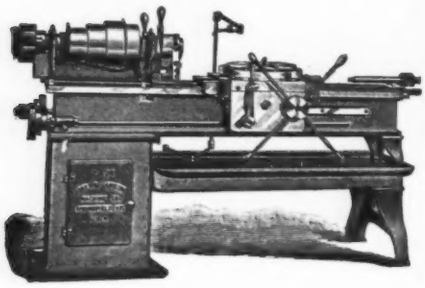

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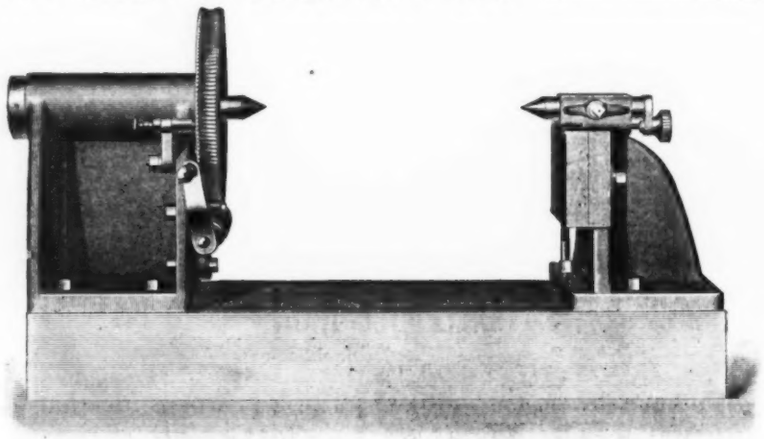

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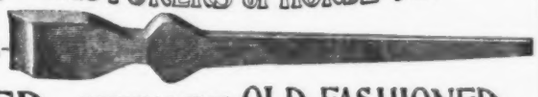

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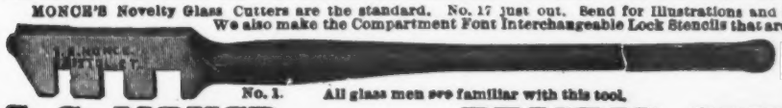

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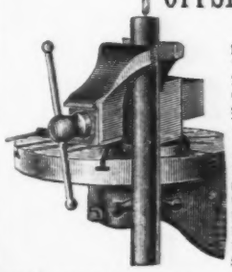

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Fig. 180.

Fig. 76.

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Fig. 209.

Fig. 381

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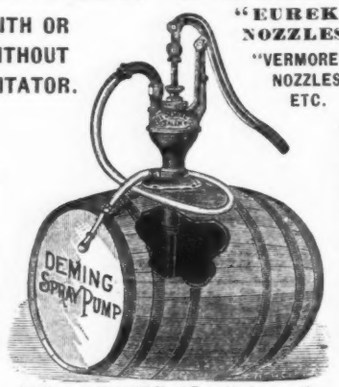

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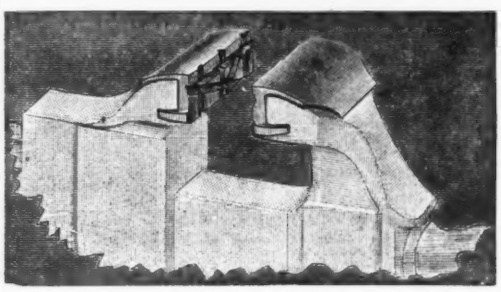

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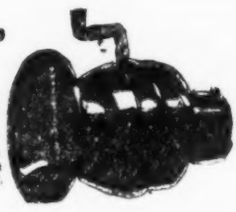

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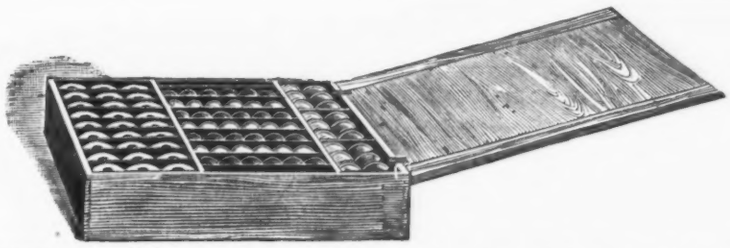

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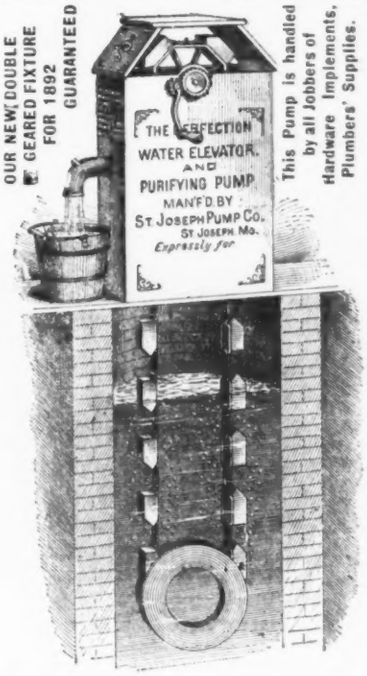

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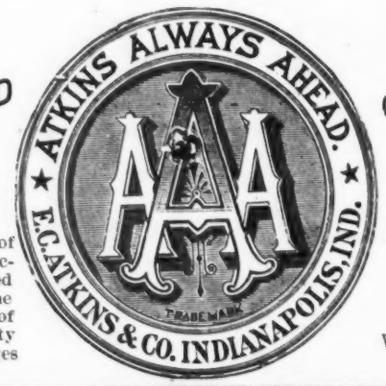

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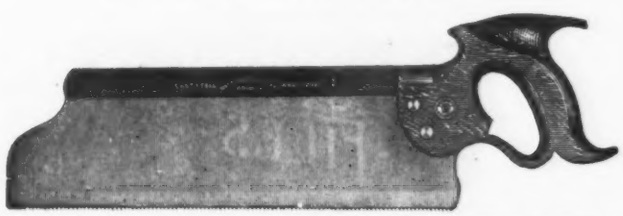

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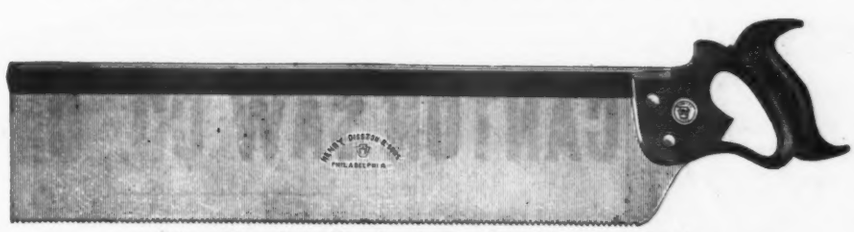

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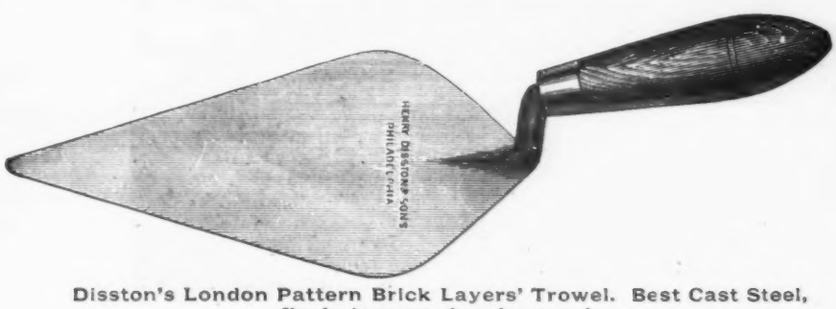

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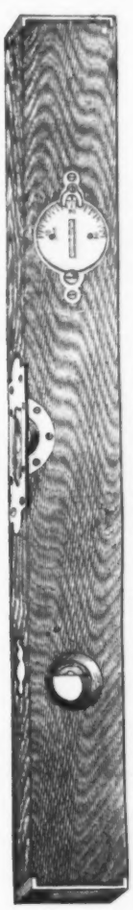

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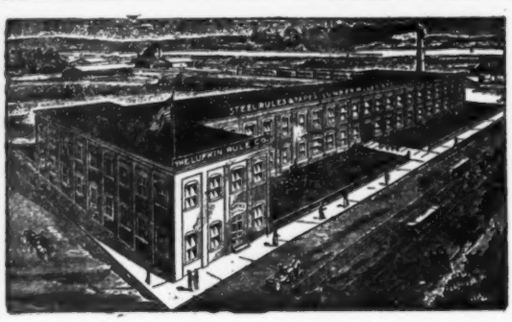

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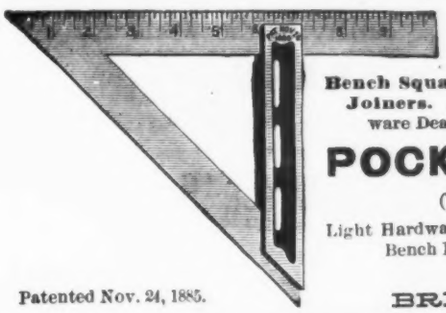

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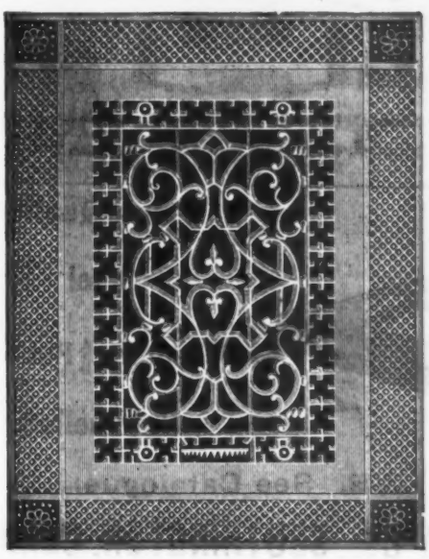

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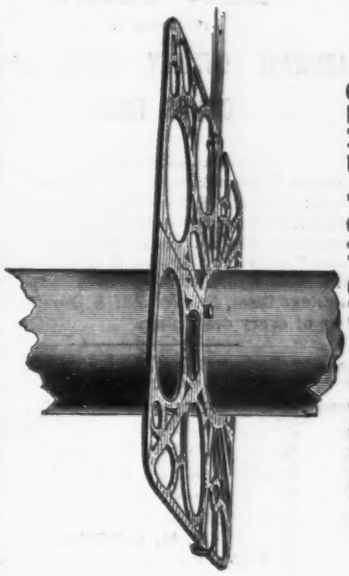

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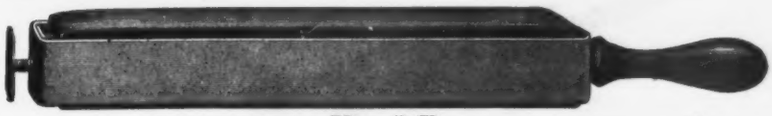

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CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark also, "Riverlin Works."

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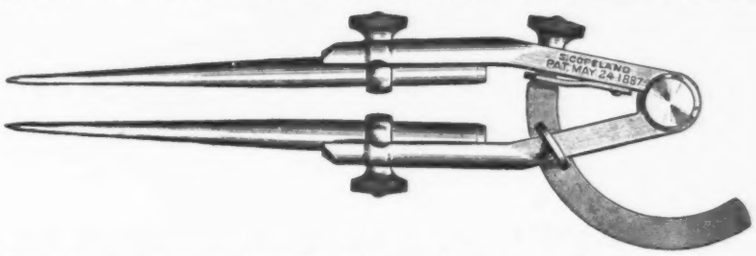

The above cut represents our No. 2 Divider, in 6", 7", 8", 10" and 15", in which a common pencil can be used in place of movable points.

The 6" by adjustment of points becomes 7", the 7" and 8" become 8" and 9", and will scribe same size circle as No. 1 of corresponding size. The 10" by adjustment becomes 12" and will scribe 35" circle. and the 15" will scribe 52" circle.

Size,	6	7	8	10	15 inch.
List,	$10.00	$11.00	$12.00	$13.00	$20.00 per doz.

Extra for Nickeling, $2.00 per doz.

Write for complete catalog of tools and specialties, with discounts.

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MANUFACTURERS OF

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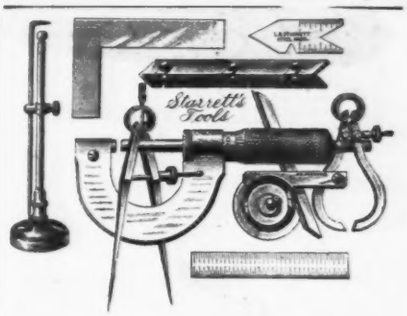

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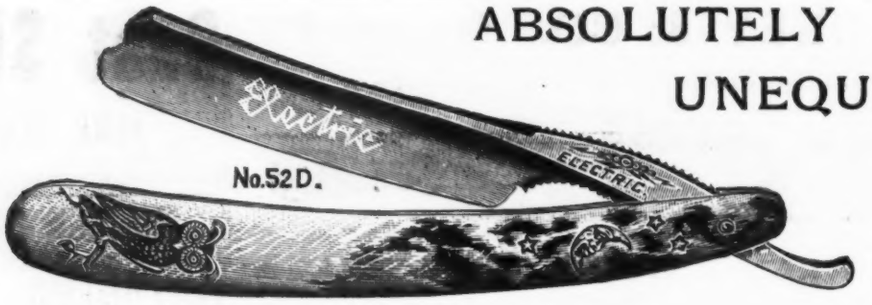

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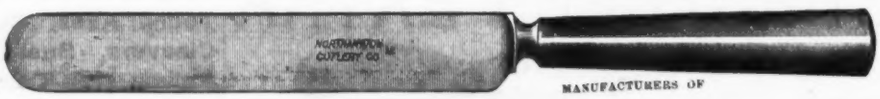

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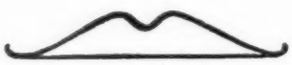

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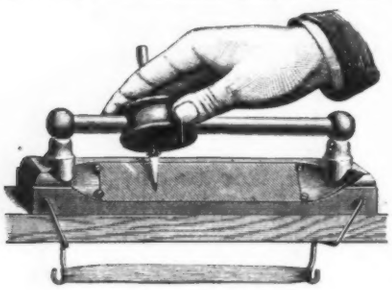

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THE PERFECT PENCIL POINTER.

Will save about one-half your pencil bill.
It is a practical machine, not a toy.
The only "Perfect" machine for the purpose
Does better work than can be done in any other way.
Does not break or waste the lead. Saves time.
Prevents soiling the hands. Any one can use it.

The above cut shows the Pointer attached to the edge of a table and shows how to take hold of the carriage in using. The pencil revolves as it is moved along on the surface of a file, which is especially made for the purpose. The entire simplicity of the whole machine makes it little liable to get out of order. By use of the clamps it can be instantly attached to desk or table, and as quickly removed, or can be used when held in the hand. The material and workmanship are the best and **EVERY MACHINE FULLY WARRANTED.**

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We have had one of your Pencil Pointers in use for several months, and it has done its work rapidly and well. We never saw a pencil sharpener before that would sharpen a pencil. Yours will do it every time and do it well.

SELLERSVILLE NATIONAL BANK, Sellersville, Pa.

It suits me and does all that you represent.

C. R. ALTHOUSE, Cashier.

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This is the best thing of the kind I ever saw. One cannot break the lead while sharpening.

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Your Perfect Pencil Pointer came to hand, and after a thorough trial proves to us that it is rightly named for it is "perfect" in every particular. We would not be without it for double the price.

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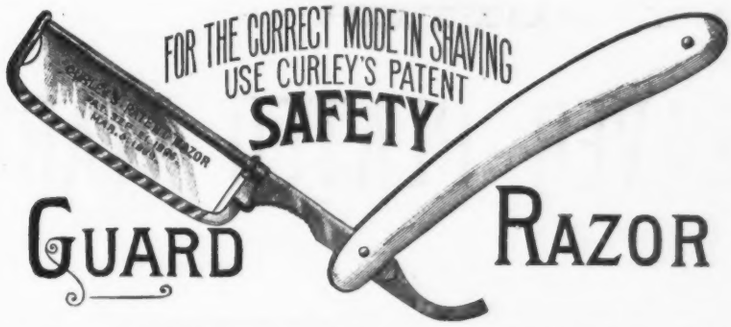

This improvement permits correct shaving; therefore no irritation is caused and the most inexperienced can shave with perfect safety.

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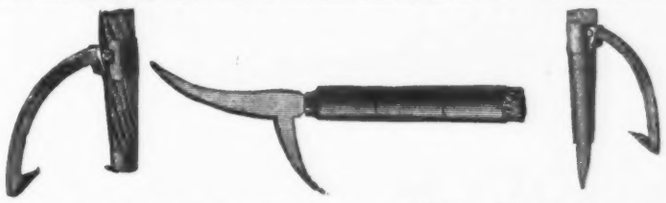

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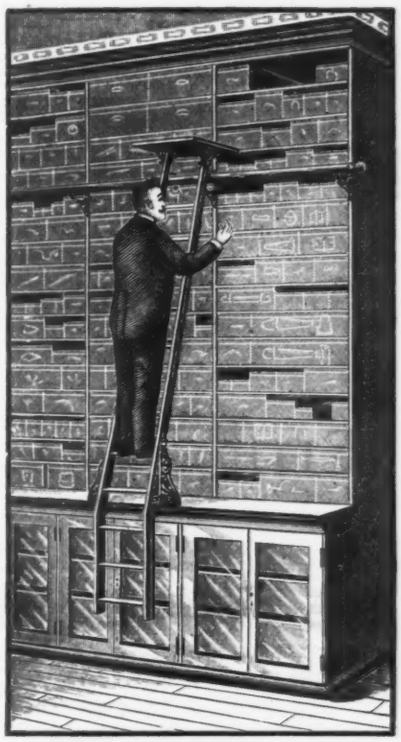

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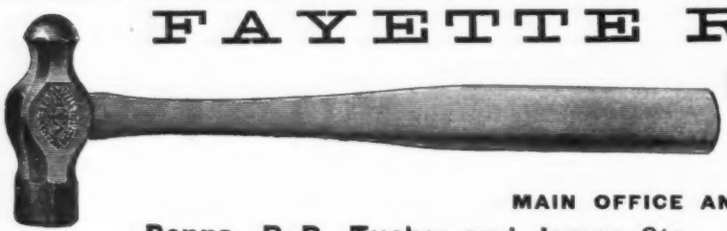

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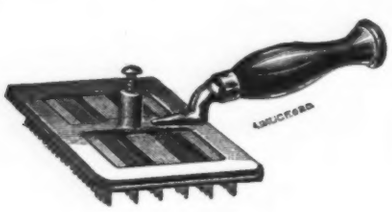

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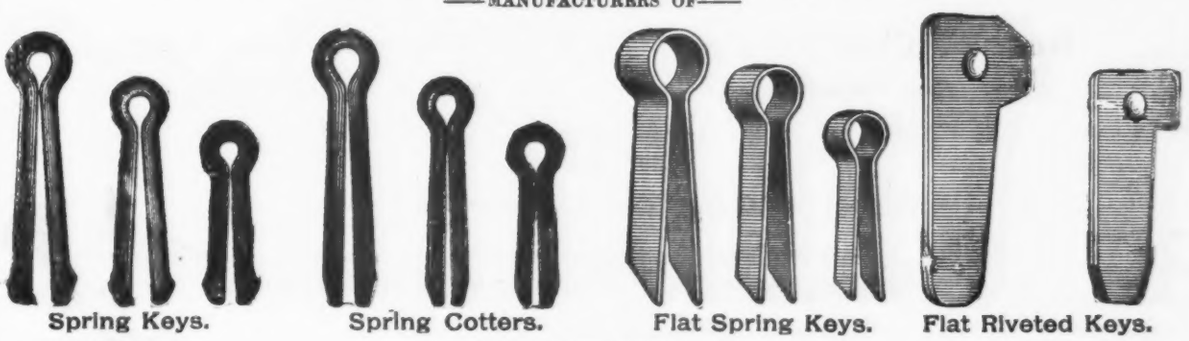

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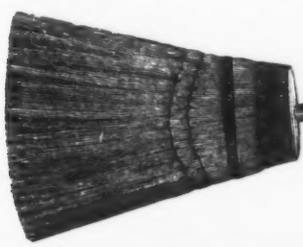

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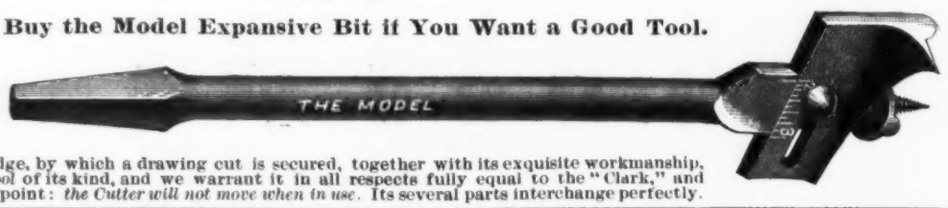

THE superior excellence of this tool consists in the peculiar seat in which the Cutter is placed. The manner in which it is fitted into its seat, in which it is so firmly held as to be absolutely immovable in use, the curve of its cutting edge, by which a drawing cut is secured, together with its exquisite workmanship, all combine to make it a *Model Tool* of its kind, and we warrant it in all respects fully equal to the "Clark," and decidedly better in one important point: *the Cutter will not move when in use.* Its several parts interchange perfectly.

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This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is especially adapted to farmers' use in building Wire Fence, &c.

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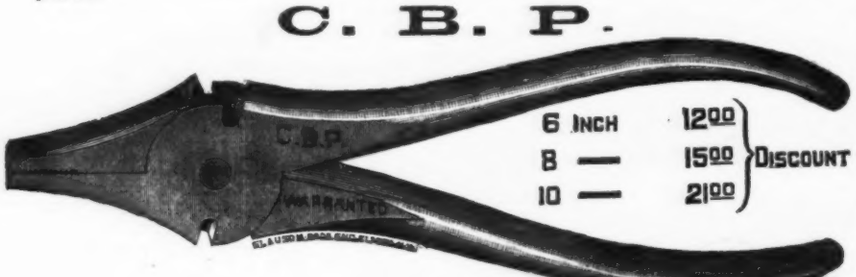
By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.

C. B. P.



What we claim for this plier it that it is made from best quality tool steel and is made heavier and stronger than any plier of its kind in the market and the finish is first-class. Also they are made so the jaws are parallel when used on wire from 9 to 14 gauge and will hold the wire solid.

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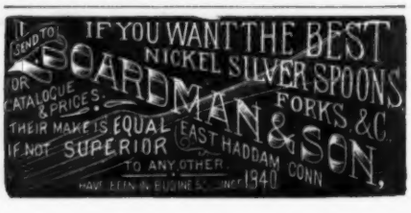

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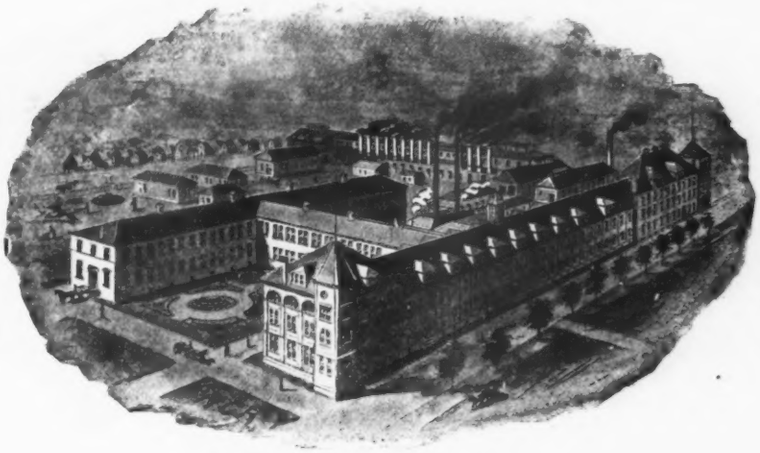

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If you desire to exchange your Register for a National, we will make you a liberal allowance for it.

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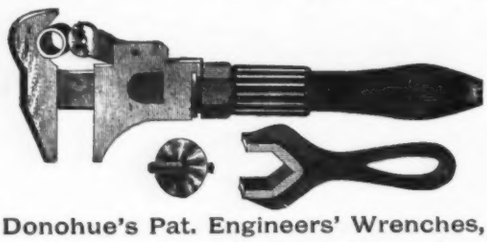

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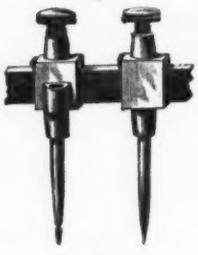
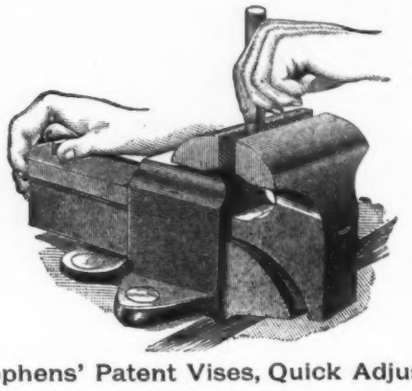


Chaplin's Patent Iron Planes, Corrugated Bottoms, Checkered Rubber Handles.



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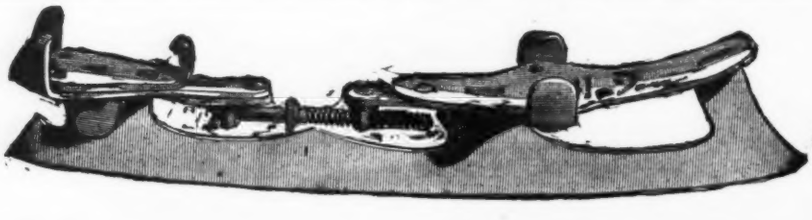
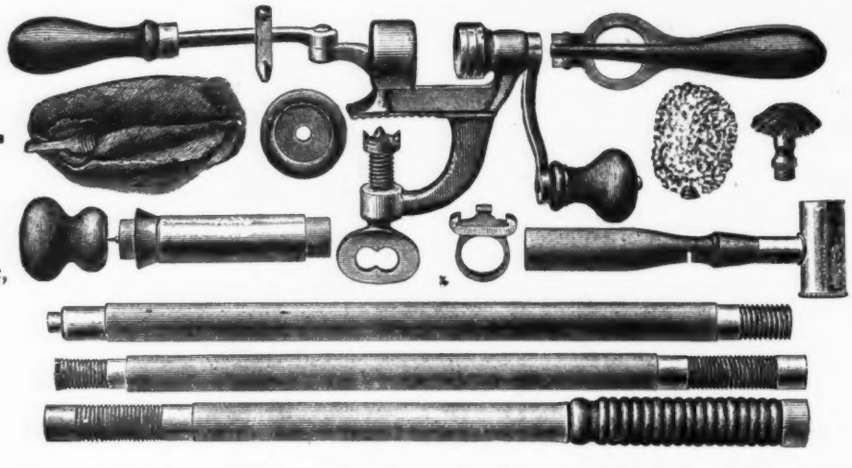


ICE SKATES

Gun Implements.



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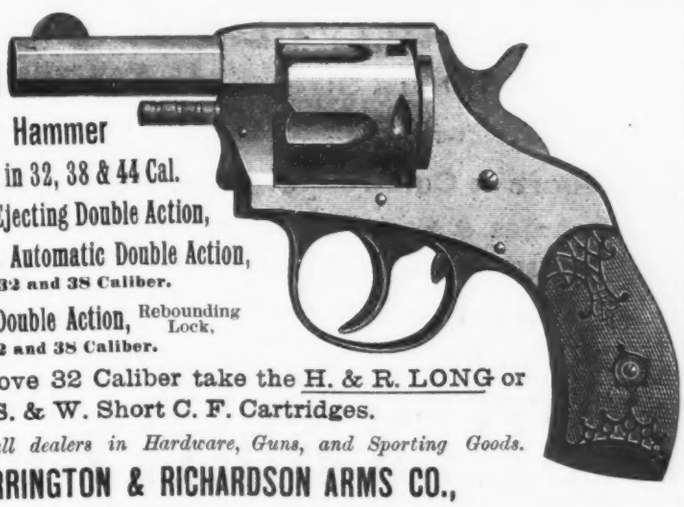

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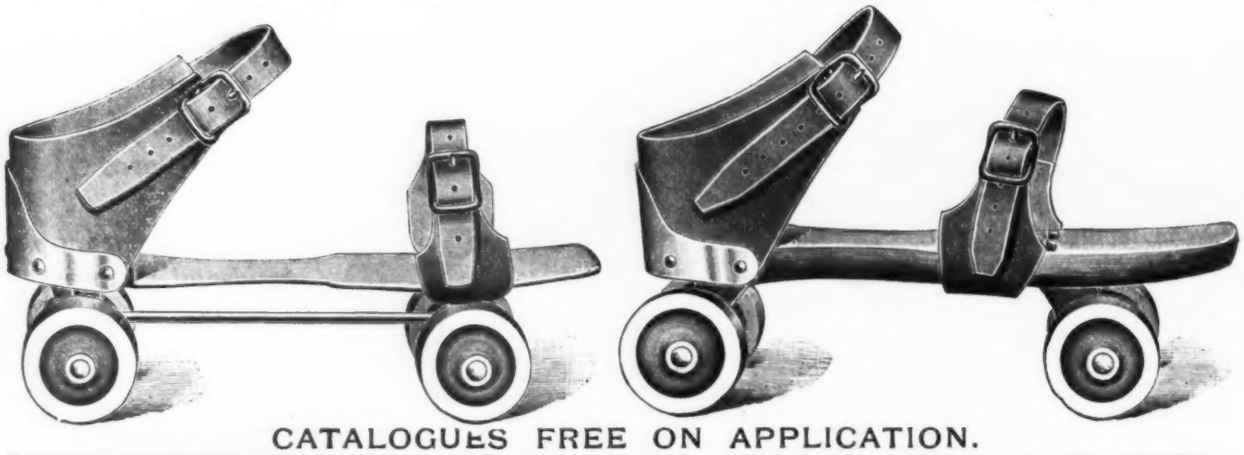

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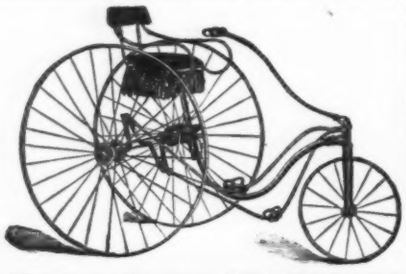

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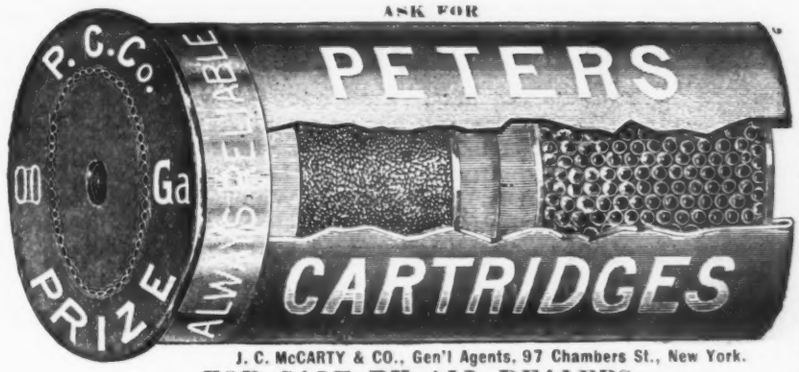

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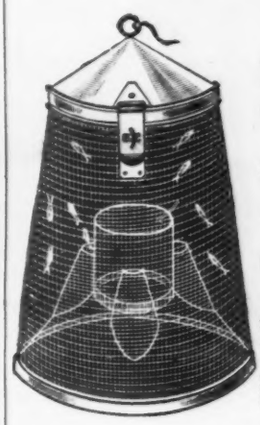

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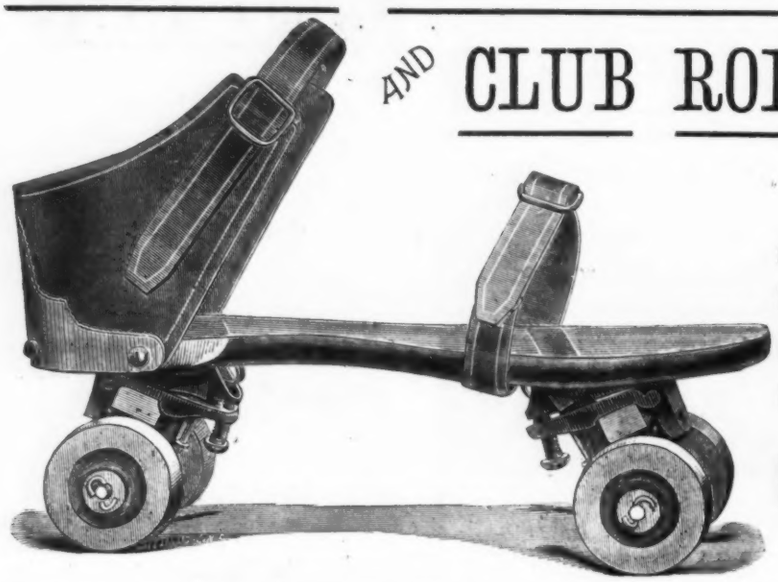

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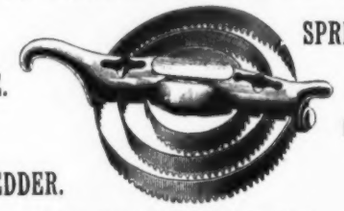

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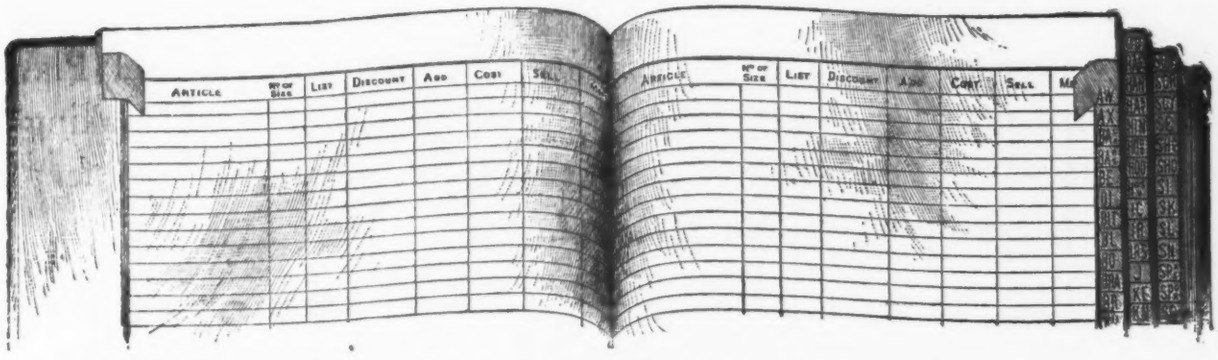

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" Saws,	"	SAW	" Cartridges,	"	CAR	" Shovels,	"	SHO
" Pumps,	"	PUM	" Rules,	"	RU	" Grindstones,	"	GRI
" Bits,	"	BIT	" Locks,	"	LO	" Stones,	"	STO

Special care has been taken to make the classification as indicated in the index correct and comprehensive, making provision for all Hardware articles and giving sufficient space for the keeping and recording of prices. It is thought that every strictly Hardware article has its first two or three letters given, thus permitting immediate reference to it by a single motion.

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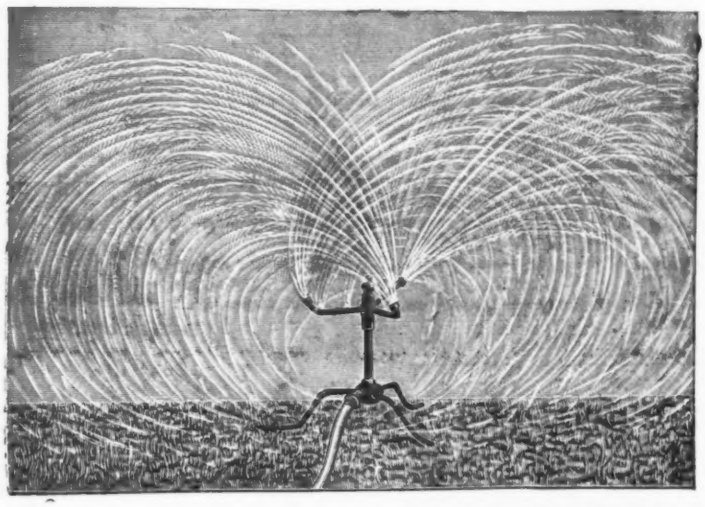

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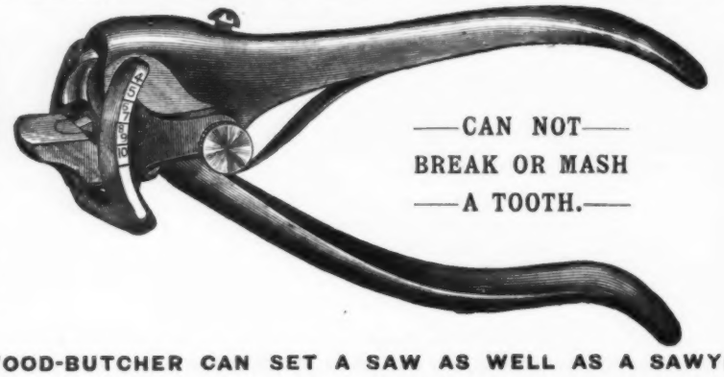

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The Screw on the top of the Set prevents mashing the Tooth. The Gauge on the side assures the correct set, and the small Screw on the face of the Set gives the required bend to the tooth. All wearing parts are made of steel, strong and durable.

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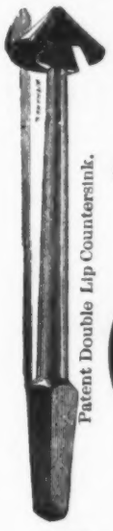

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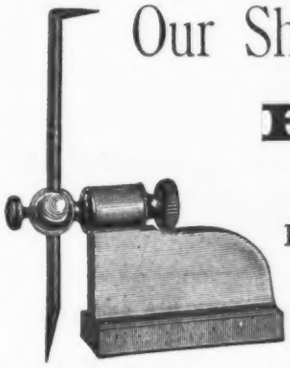

Patent Combination Gauge.

Patent Combination Gauge.

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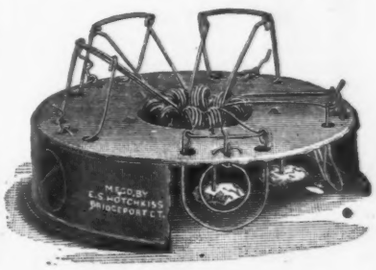

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Mouse Traps, Horse and Barbers' Clippers, Curry Combs, Rat Traps, Wrenches, Lemon Squeezers.

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Best Common Mouse Traps, Steak Hammers, Boot Jacks, Lap Boards, Beacon Hill Pat. Mouse Traps, Mallets, Bung Starters, Hand Screws.

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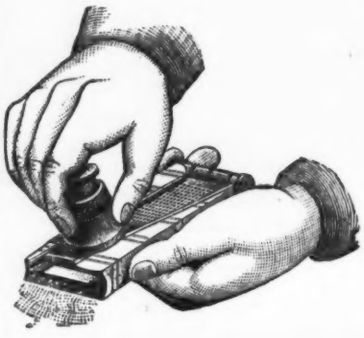

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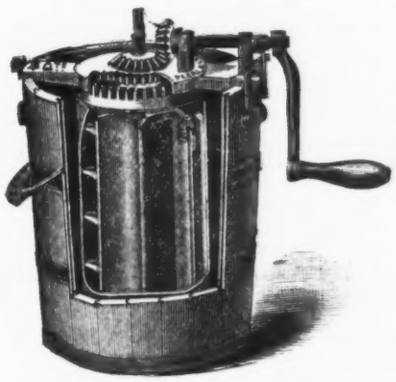

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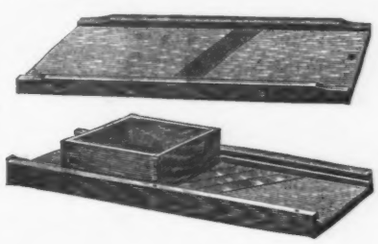

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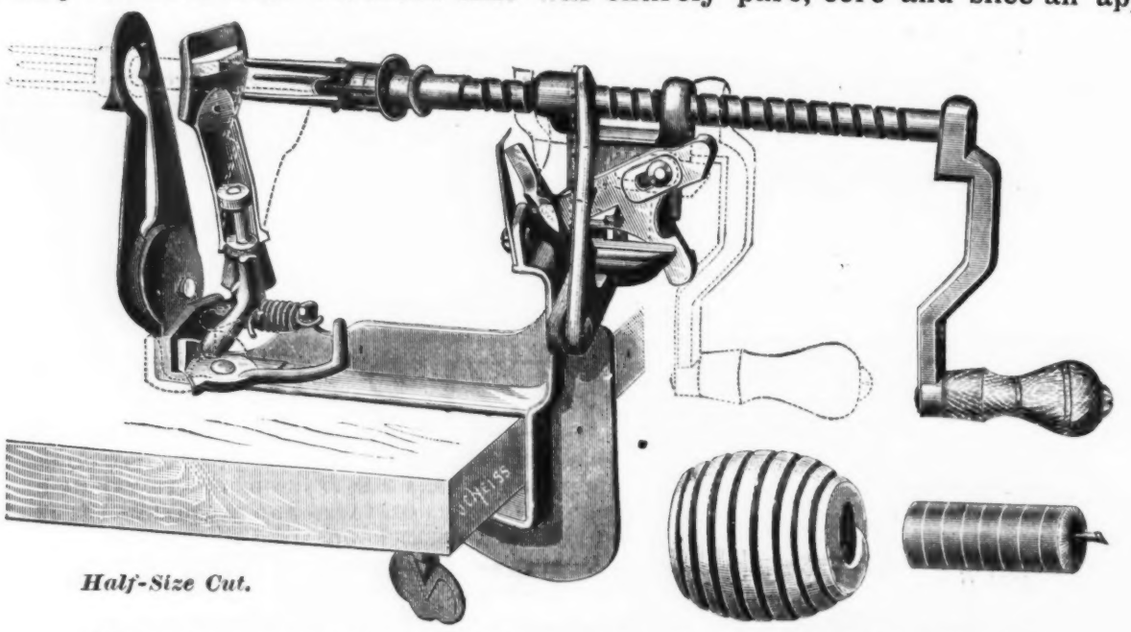

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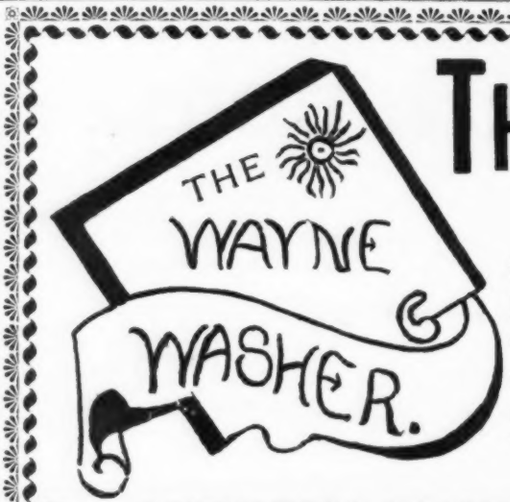

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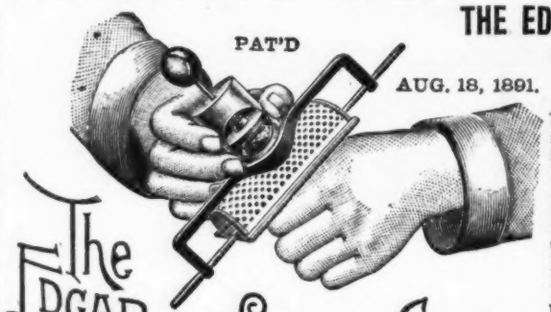

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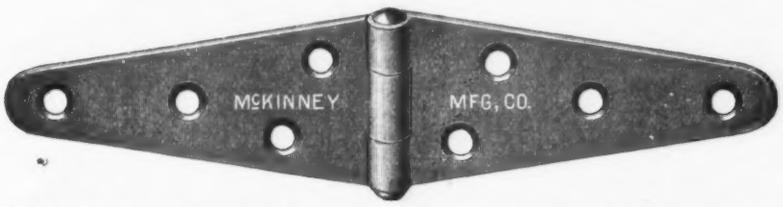

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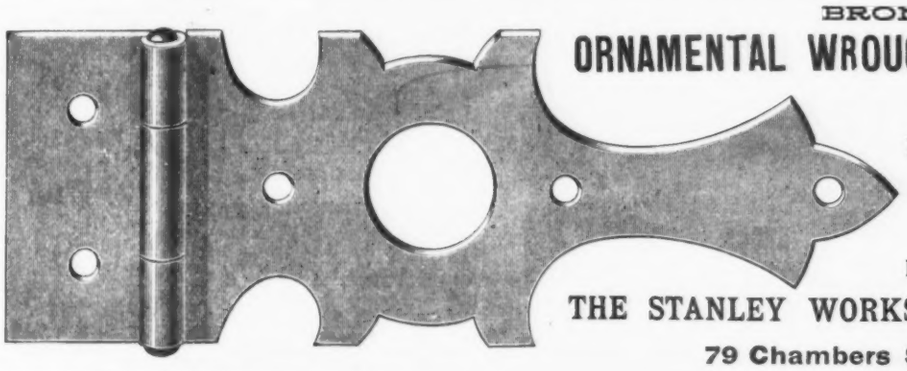

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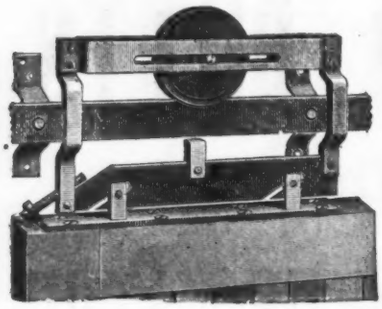

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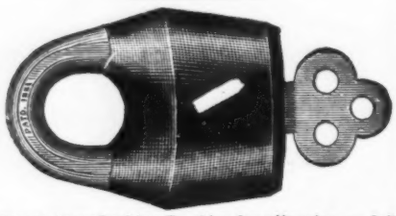

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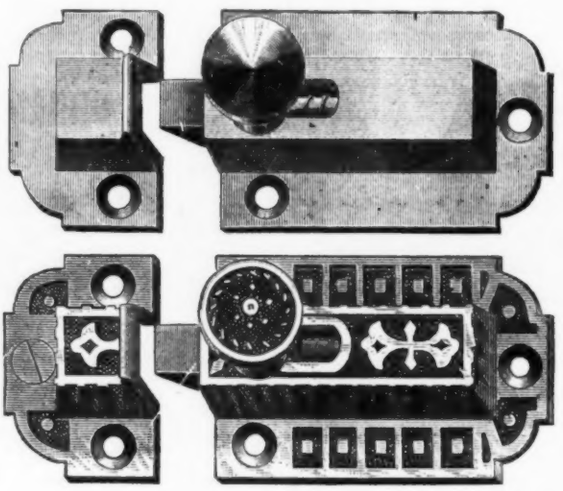

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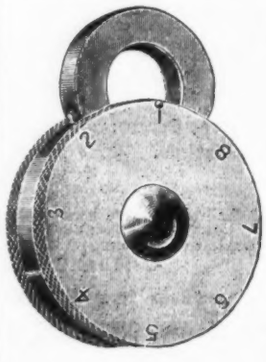

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WHY NOT PROTECT YOUR

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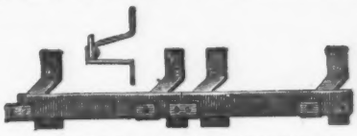

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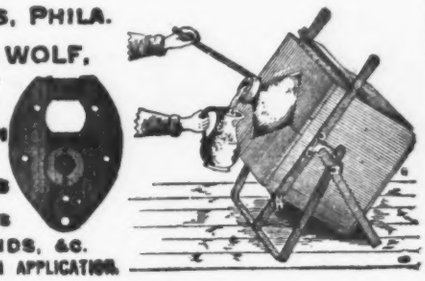

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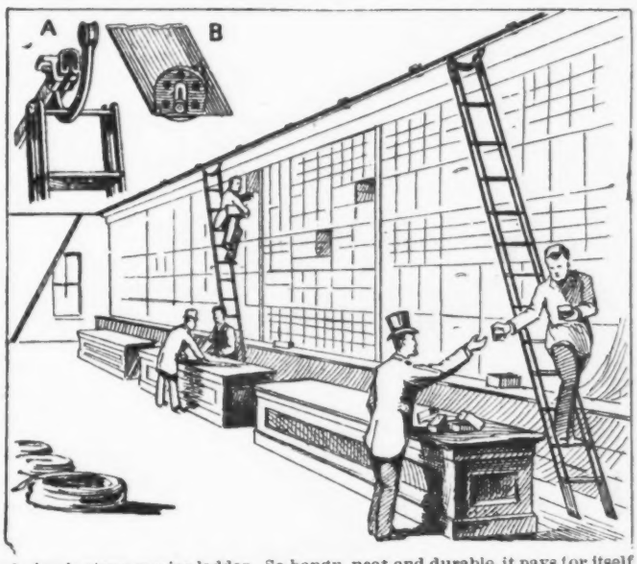

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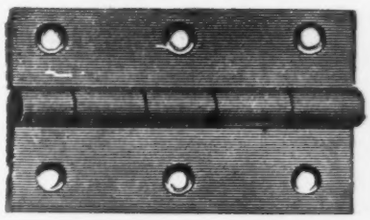

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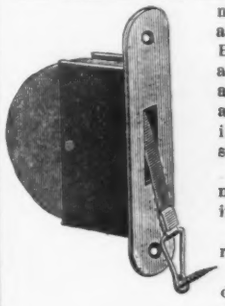

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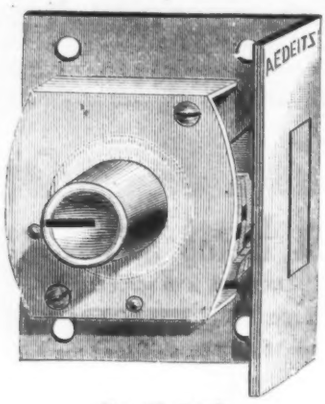

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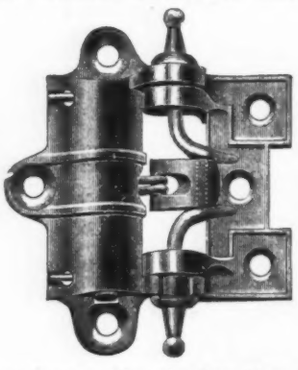

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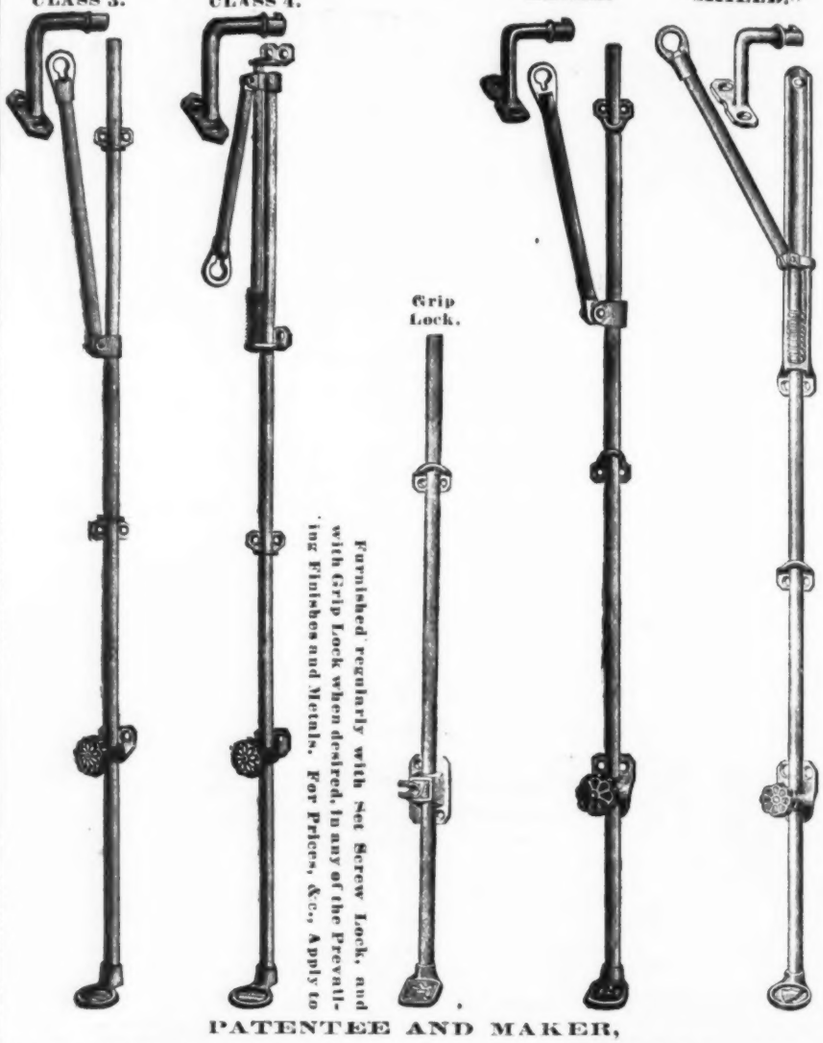

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Saves Merchant carrying double stocks.

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Takes the lead. Every feature a triumph. No dirt or ice can clog it. It is the most convenient, most durable and the handsomest. Made in all sizes, both loop eye and round eye; also swivel eye and open eye, and double for bit snap, &c. We are Headquarters for Web, Rope and Leather Halters, Horse and Cattle Ties.

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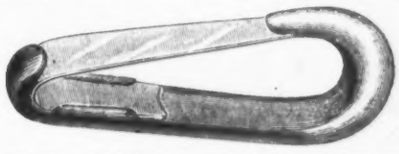

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Our "Daisy" is the lowest in price and the best Wood Jack. Our "Victor" is the lowest in price and the best Iron Jack on the market.

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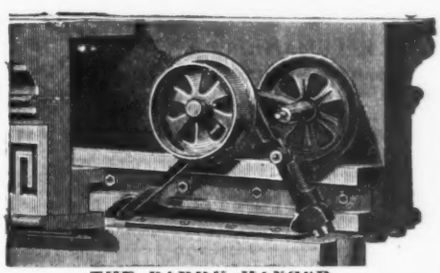

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CENTRAL CITY BOLT CO.,

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STARR ★ CASH ★ CARRIER.

It is not a push car. It is not a combination of strings, but a machine made of metal, an ornamental fixture, and is the only Cash Carrier that is propelled by a durable steel spring and is sold outright at a very low price. Address

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BEST AND CHEAPEST.

Save **60 per cent** labor in hanging sashes

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Cut One-half Size.

Sample pair sent to any hardware or saddlery firm by addressing

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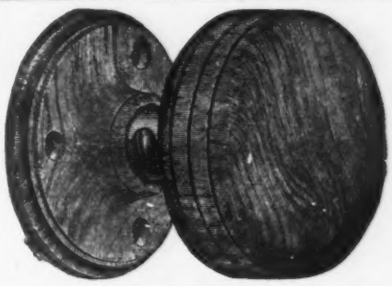

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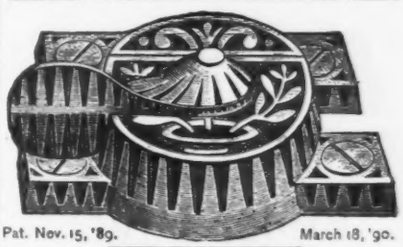
Illustrated Price-List on application.



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Meeting-Rail Sash Lock

Has the greatest efficiency and a larger amount of the finest trade with first-class Hardware dealers than any other Sash Lock, showing the high appreciation of Architects, Builders and Dealers.

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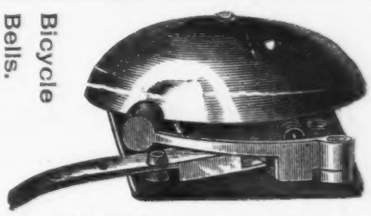

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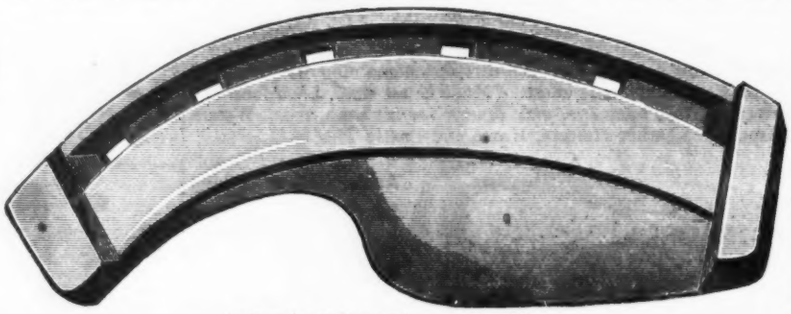

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The Best and Cheapest in the World.

Blunt Calk. Seven Sizes.

Warranted to outwear any shoe made.

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HORSE SHOES.

"Burden Best" Iron.

Boiler Rivets.

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A Full Line of Carriage Hardware

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JUST TRY THEM and **YOU** will say they excel all others.

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Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blank Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

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Manufactured by the NATIONAL HORSE NAIL CO.,

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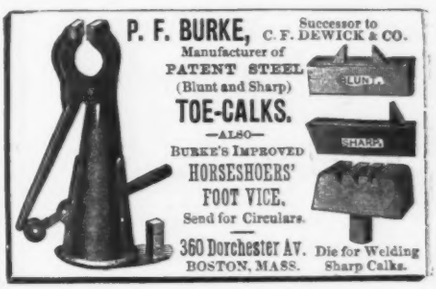
PARAGON BOX OPENER.

This is a Practical, Convenient and useful Tool. A Box Opener, Nail Puller and Nail Driver. Made of Steel, well tempered and strong. Endorsed by all who have used it, and proves a ready seller. **Price, Each, 75 Cents.**

Factory: New Haven, Conn. **PARAGON MFG. CO., 112 CHAMBERS ST., NEW YORK.**



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NEW pattern Heavy Screw Clamps. Strongest in the market.

HAMMER'S MALLEABLE IRON OILERS, 3 Sizes.
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For sale by all the principal Hardware Dealers Send for Price List.

MALLEABLE IRON CASTINGS of superior quality, and Hardware Specialties in Malleable Iron made to order.

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An appliance to be attached to a tackle block for holding the load at any desired height. Grips the rope but does not injure it. Applicable to any style of block and easily attached. The lightest and cheapest on the market and perfectly sure. If your hardware dealer does not keep it send to us and we will deliver it.

Blocks furnished equipped with grips if desired.

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WHY USE WOODEN OR HEAVY STEEL BLOCKS

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TACKLE BLOCKS

—MADE BY—

The Cleveland Block Co.

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ARE BETTER IN EVERY WAY.

No waste material. Every ounce of weight in the line of strength. No clumsy outside straps or bolts. As light as wooden blocks and vastly more durable. They wear, but never break. Sheaves interchangeable.

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THE STEEL TACKLE BLOCKS

MANUFACTURED BY THE

BOSTON & LOCKPORT BLOCK CO.,

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—ARE THE—

Strongest, Lightest, and most Durable Blocks made.

Note the superior strength gained by the encircling outside strap, with bolts and steel pin passing through both plates and straps. Edges rounded to protect the rope.

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TOLEDO BLOCK WORKS,

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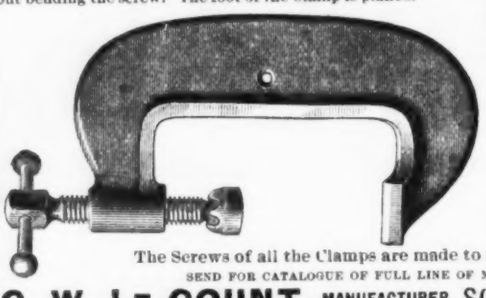
WILL PROVE SATISFACTORY TO USER.

LE COUNT'S HEAVY STEEL CLAMP.

Extra heavy, with Button on end of screw, hung on a ball so as to accomodate itself to irregularities without bending the screw. The foot of the Clamp is planed. The back is 2⅜ inches from center of Screw



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" 2,	"	3	"	2 00
" 3,	"	4	"	2 25
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" 6,	"	8	"	3 25
" 7,	"	10	"	3 75
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" 9,	"	14	"	5 00
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Full Set, 11 sizes, $40.50.

Ship or Bridge Clamp with Large Screws.

No. 12 opens	24 inches		price,	$12 00
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The Screws of all the Clamps are made to reach the lower number.

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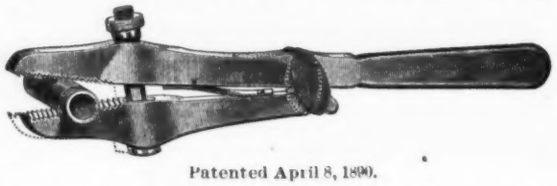

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The most Effective, Reliable and Perfect Wrench in the market.

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BUFFALO SCALE CO., Buffalo, N. Y.
SCALES OF ALL KINDS.

Bemis & Call Hardware & Tool Co.

COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal.

This Wrench can be Furnished with Long Nut or Sleeve.

No. 3 PIPE WRENCH.

The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass., U. S. A.

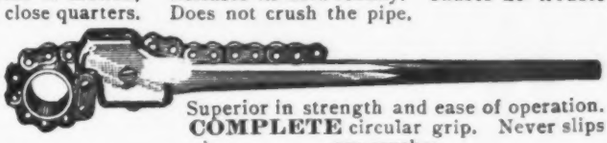
TRIMO PIPE WRENCH,

Forged Steel.

All parts Interchangeable.

Grips firmly without loss of motion, in close quarters. Releases its hold readily. Does not crush the pipe. Causes no trouble

TRIMO CHAIN PIPE WRENCH.



Superior in strength and ease of operation. COMPLETE circular grip. Never slips nor crushes.

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DOUBLE END WRENCHES

For Standard Hexagon Nuts

Finished or Unfinished

DROP FORGED from BEST BAR STEEL
in Lengths from 6 to 24 inches

Taking Nuts for ¼ up to and including Nuts for 1¾ inch bolts

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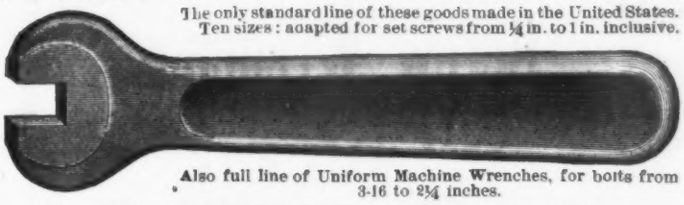
The only standard line of these goods made in the United States.
Ten sizes: adapted for set screws from ¼ in. to 1 in. inclusive.



Also full line of Uniform Machine Wrenches, for bolts from 3-16 to 2¼ inches.

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Brock's Patent Drop-Forged Chain Pipe Wrench,

and Lathe Dogs, Collars, Thumbscrews and special Drop Forgings of every description, from Iron, Steel, Copper or Bronze.

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"RIVAL" PATENT Lawn Sprinkler.

Cheapest and Best in Use.

Agents Wanted. Liberal discount to buyers

¾ Inch Regular Hydrant Thread, or Pipe Thread to Order) per doz. $7.50
1 Inch, Reg. Gas Pipe Thread, " " 12.00
1½ Sample Sprinkler sent prepaid on receipt of 60 cents

The Spray from it covers upward of 1000 sq. feet of lawn. It is the only patent adjustable Sprinkler which is adaptable to any water pressure. Being made of brass, and having no revolving parts to wear out, or small opening to clog up, it can be operated with sandy or muddy water as well as clear, and will last for years. To operate, screw Sprinkler on end of hose, stick the rod into the ground in a vertical position, adjust the acorn to suit pressure and spray wanted and it is ready for use. It may be so regulated as to throw a spray as coarse as rain or as fine as mist, and will make one of the most beautiful fountains imaginable. It is unequaled in merit, requires no attention and is sold at a less price than any sprinkler in the market. Remember, the RIVAL is the only Sprinkler made by which the coarseness of the spray and the area to be wet can be regulated. They are packed 1 doz. in a box, and finished either plain or nickel-plated.

FULL SIZE.

The JOHN H. McGOWAN CO.

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(Patent applied for.)

The most handsome and durable Sprinkler now offered to the trade. Stands about 15 inches high. Top Swivel and Arms made entirely of brass. Stand Pipe ¾ inch. Bottom Runners and Plate made of iron. Painted, Japanned and Bronzed. Furnished complete with coupling for ¾ inch hose. Packed one in a box.

FOR SALE BY ALL JOBBERS.

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THE NEW MODEL LAWN MOWER.

Unequaled for Simplicity and Durability.

Write us for Circular and Price-List.

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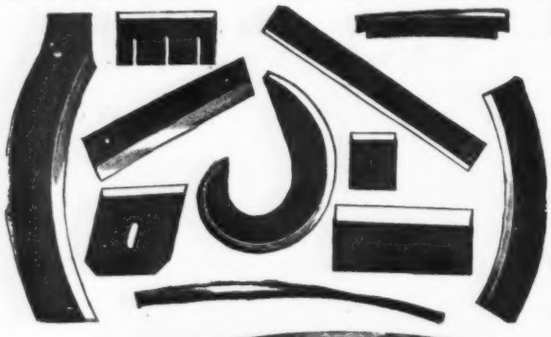
The Largest Manufacturers of Hand and Horse Lawn Mowers in the World.



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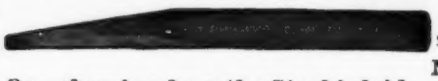
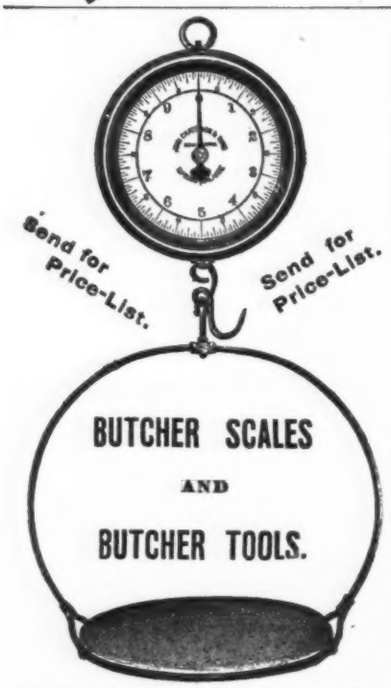
Manufacturers of **MACHINE KNIVES.**

Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description



End view of Plated Stock for Dies, Lawn Mower Knives, Blades &c., showing how the Steel is laid.



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DO YOU SELL

THE BIEDER ADJUSTABLE Grass Catcher ?

Your Competitors Do.

No. 7 fits all low wheel Mowers.
No. 13 " high "

With only a single Catcher of this make in stock you can fit any mower. Do you see the point? Be wise and buy only the Bieder Adjustable Grass Catcher. It is the cheapest and best. We guarantee to fit all mowers. If your jobber don't handle them write direct to us.

CLEVELAND NOVELTY CO.,
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THE ROSS & FULLER ASS'N.
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TRY YOUR JOBBER FIRST

THE IMPROVED ACME STEEL WRENCH

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The Hercules Screw Driver and Tack Claw (Patented).

This Screw Driver is made from one piece of special cast steel, in all sizes, from 1¼ in. to 12 in. The blade is well polished, carefully tempered, and every screw driver is subjected to a severe test and warranted. Handles Japanned with the best quality baking Japan.

The Strongest and Most Durable Wrench and Screw Driver Made.

Write for Prices and Full Information.

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Genuine Improved

KNIFE HANDLE

PATENT

Screw Wrenches

MANUFACTURED BY

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Established in 1859.

Patented July 6, 1880.

Registered March 31, 1874.

Patented July 5, 1884.

Sectional View Illustrates our New Knife Handle, showing Malleable Iron Frame and Shank of Bar keyed into position

☞ Straight Bar, Extra Long Nut for Screw in Jaws. ☜

The BEST MADE and STRONGEST WRENCH in the MARKET

J. C. McCARTY & CO.,
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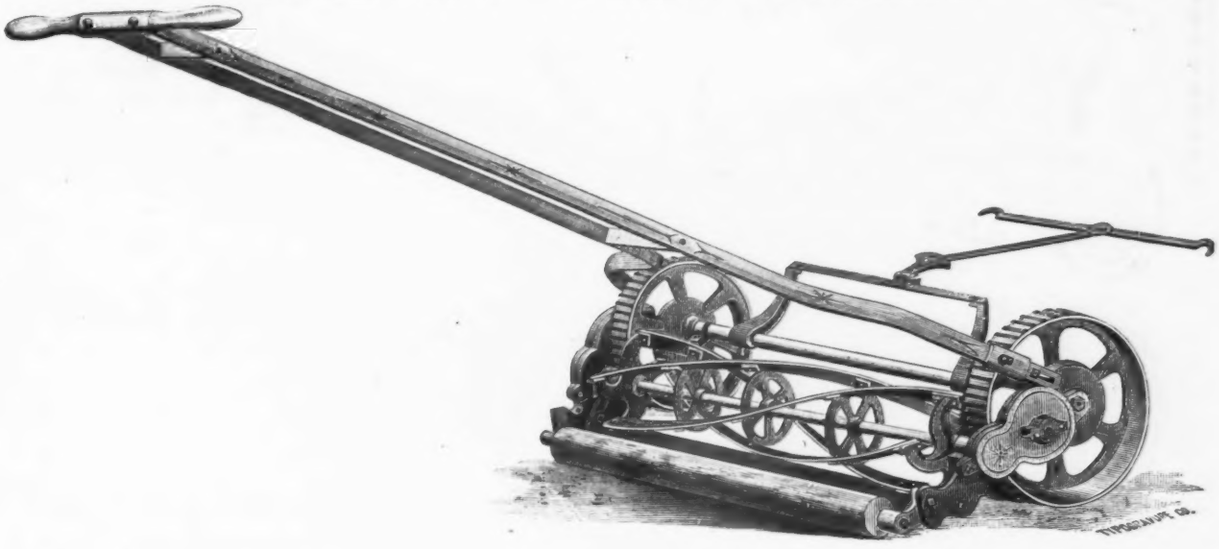
NEW PONY MOWER

25-INCH CUT. WEIGHT 110 POUNDS.



Can be used with pony and boy to guide, or one man to pull and boy to guide. An excellent mower. Nothing like it in the market.

List Price, $50.00. Discount to Trade.

Also Pennsylvania, Continental, Great American and New Quaker City Lawn Mowers.

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HENLEY'S LAWN MOWERS

First-class high grade machines, made of the best materials. Neat, symmetrical, strong, durable and unexcelled in construction and ease of operation. Does perfect work. For prices address

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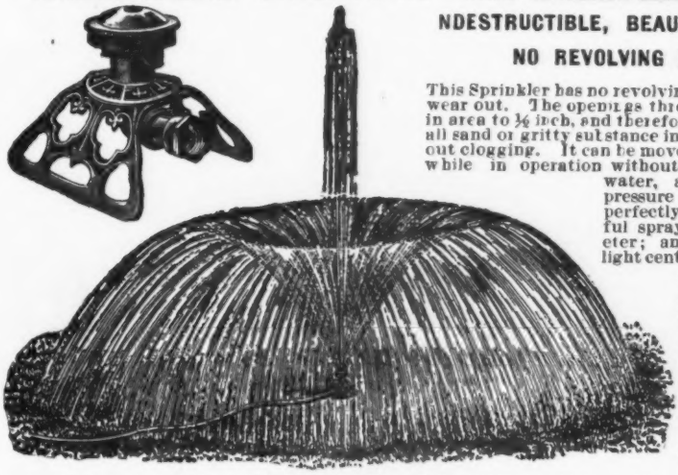
CACTUS LAWN SPRINKLER.



NDESTRUCTIBLE, BEAUTIFUL, CHEAP.

NO REVOLVING PARTS.

This Sprinkler has no revolving parts to leak or wear out. The openings throughout are equal in area to ⅜ inch, and therefore will pass freely all sand or gritty substance in the water without clogging. It can be moved about the lawn while in operation without turning off the water, and with a low pressure will distribute a perfectly even and beautiful spray 30 feet in diameter; and in addition a light center fountain spray 15 to 18 feet in height. It is recommended as the most durable, beautiful and cheapest Sprinkler in the market and is guaranteed to give entire satisfaction to any purchaser. For sale by all dealers.

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BLAIR MANUFACTURING CO.,

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MANUFACTURERS OF

"The Lawn Razor."
"Easy" Lawn Mower.
"Bay State" " "
"Hercules" High Wheel Lawn Mower.
"Mohawk" Solid Wiper " "
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The "Lawn Atomizer."
"Revolving Turf Edger."
Hammock Pattern Grass Collector.

Send for Price-List and Discounts.

"Coldwell's Standard."
"Coldwell's Model."
"Coldwell's High Wheel."
"Coldwell's Improved Horse Mower."

These are unanimously pronounced to be the

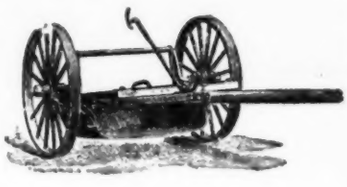
BEST MOWERS

ever offered to the public.

Coldwell Lawn Mower Co.,

NEWBURGH, N. Y.

Wheel-Barrows



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FOR EVERY PURPOSE. ALSO
DRAG AND WHEEL SCRAPERS.
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IMPROVED

Lawn Mower's Partner,

PAT. MARCH 17, 1891.

The only Practical Grass Carrier in the market. Adjustable to any and all sized mowers. We made big improvements and great reductions in Price.

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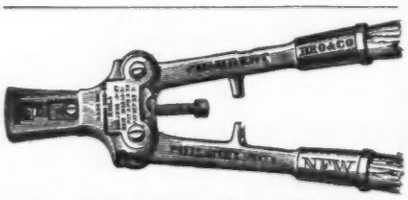

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For cutting off the ends of Bolts and Rivets.

Liberal discounts to the trade.

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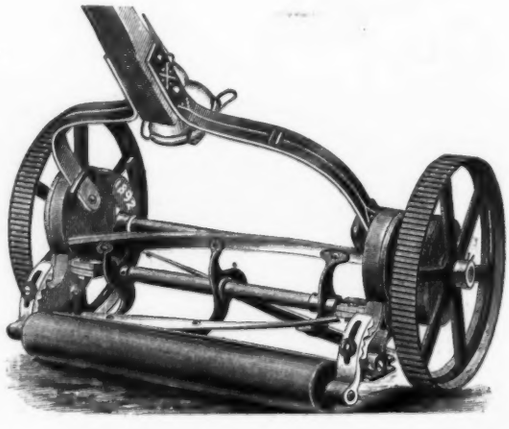

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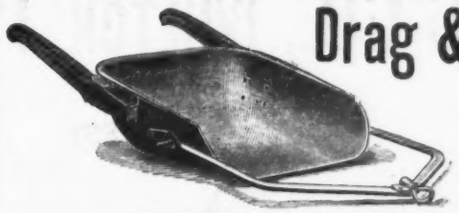

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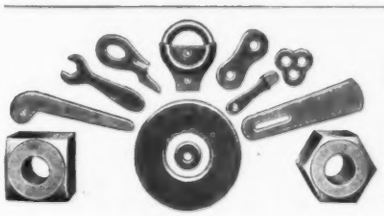

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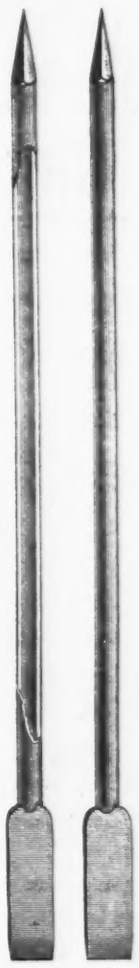

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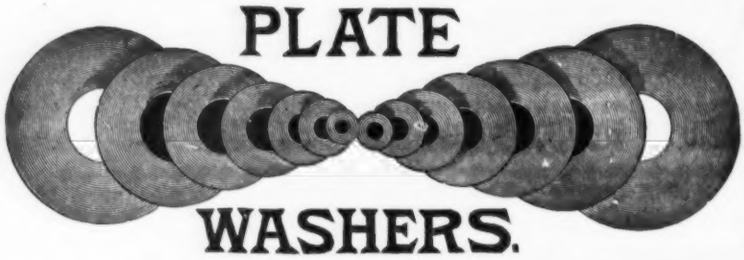

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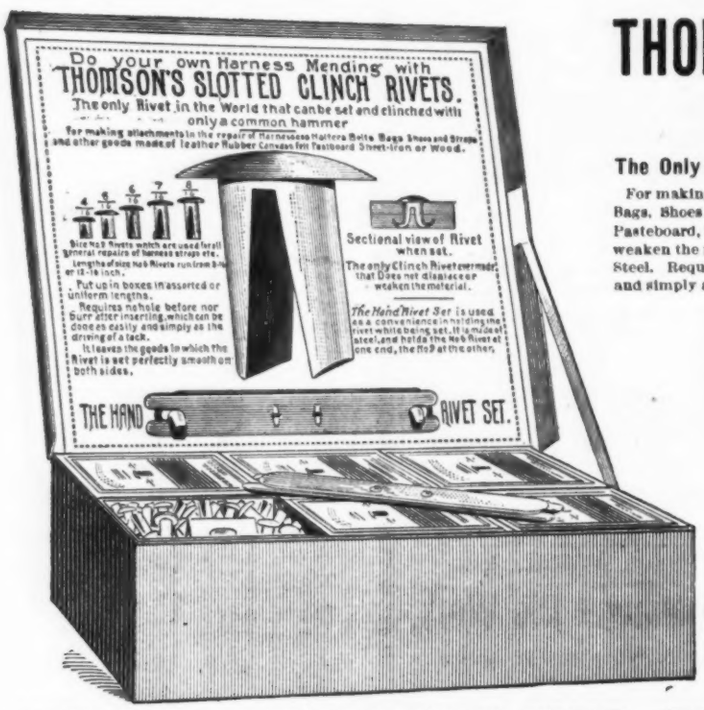

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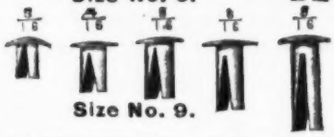

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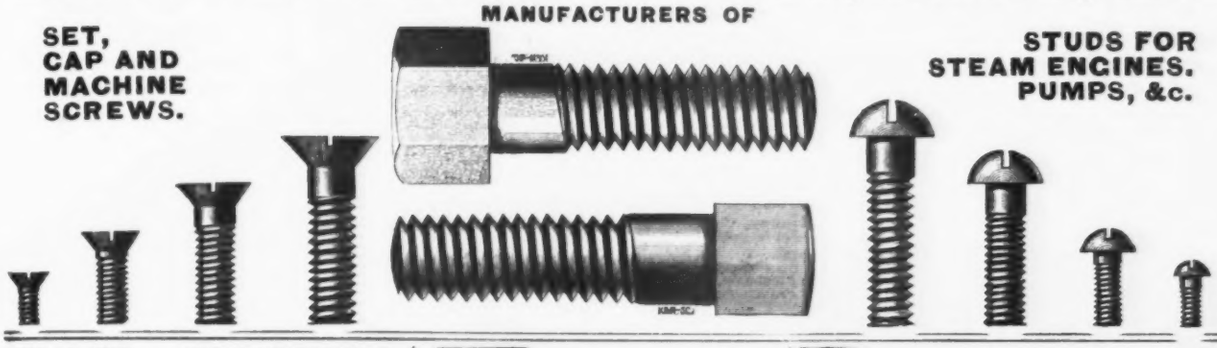

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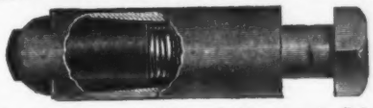

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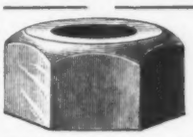

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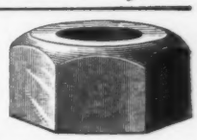

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Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N.Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain, Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.
Union Hardware Co., Torrington, Ct.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia Pa.
Herrick & Cowell, New Haven, Conn.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 93 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass
Woodward & Rogers, Hartford, Conn.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa.
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 136 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. H. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 538 to 564 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevator Buckets.
Clark, W. J. & Co., Salem, O.

Elevator Gates.
Webster & Perks Tool Co., Springfield, O.

Elevators, *Makers of,*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R, I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co. Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co. Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. K., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa.
Swindell, W. & Bros., Pittsburgh, Pa
Taliman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry. & Machine Works, Harrisburg Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., S. N
Shipman Engine Co., Boston, M

(See Alphabetical Index, Page 116.)

Southwark Foundry and Machine Co Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn
Church, Isaac, Toledo, O.

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum, E. T., Detroit, Mich
Buffalo Fence Wire Co., Buffalo, N. Y.
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
DeKalb Fence Co., DeKalb, Ill
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee

Fiber Ware
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 30 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence, R. I
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Flour Sifters.
Meyers, F. J. Mfg. Co., Covington, Ky.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Foundry Riddles.
Estey, W. S., 65 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collau, Victor, Detroit, Mich.
S. Obermayer Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass

Fruit Presses.
Enterprise Mfg. Co., Philadelphia, Pa.
Shepard Hdw. Co., Buffalo, N. Y.

Garden Tools.
Cleves, W. B., Binghamton, N. Y.
Noyes, R. B. & Co., Greenfield, Mass.

Gas Machines.
Kemp, Clarence M., Baltimore, Md.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Vancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Mass.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. . & Co., Gloucester, Mass.
Improved Process Glue Co., Gloucester Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind.
Diamond Machine Co Chicago, Ill.
Glennon & Krause, Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gun Implements.
Union Hdw. Co., Torrington, Conn.

Gunpowder, *Makers of.*
Ladin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich

Hand Screws.
Grand Rapids Hand Screw Co., Grand Rapids, Mich

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Coburn Trolley Track Mfg Co, Holyoke, Mass
Cronk Hanger Co., Elmira, N. Y.
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brady Mfg. Co., Brooklyn, N. Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Graham, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplus, Dunn & Alder, 97 Chambers St., New York.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Cleveland Fdy. Co., Cleveland, O.
Co-operative Hdw. Mfg. Co., Worcester, Mass.
Cronk Hanger Co., Elmira, N. Y.
Ellis, Geo. O. & Sons Co., Phila., Pa.
Garrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
The Stanley Works, New Britain, Conn
Weiland, Chas., 143 Chambers St., N.Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hog Rings and Ringers.
Blair, E., Bucyrus, Ohio.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Marls Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E.D., N. Y
Stuart & Peterson Co., Phila., Pa.
Wagner Mfg. Co., Sidney, O

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phœnix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. E., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St, N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
Peerless Freezer Co, Linn, O.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York
Sherwood Mfg. Co., Buffalo, N. Y.

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. R. & Co., Philadelphia.
Corning, Edw. & Co., 39 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia.
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 Water, St., N. Y.
Leonard, J., 446 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit. Mich.

Lanterns.
Dietz, R. E. & Co., 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo, N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Ette & Henger Mfg. Co, St. Louis, Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St Louis, Mo.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Hart, H. C. Mfg. Co., Detroit, Mich.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Athol, Mass.

Locks & Knobs, *Manufacturers of.*
Canton Combination Lock Co., Canton, Ohio.
Clarien Mfg. Co., Cleveland, O.
Deitz, A. E., 97 Chambers, N. Y.
Reading Hdw. Co, Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bertsch & Co., Cambridge City, Ind.
Bickford, H., Lockport, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co, Laight & Canal Sts.
Gould & Eberhardt, Newark, N. J.
Harrington, E. Son & Co., Phila. Pa.
Henderson Machine Tool Co. Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Henley Mch. Tool Works, Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
National Machinery Co., Tiffin, Ohio.
Newark Mch. Tool Works, 39 Park, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y
Ohio Machine Tool Wks, Cincinnati, O.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Webster & Perks Tool Co., Springfield, O
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machine Knives.
Lorinz Coes & Co., Worcester, Mass.

Machine Tools —*See Machinery.*

Machine Work.
Angus, C. H., Albany, N. Y.

Machinists' Scales.
Comin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Branford, Conn.
Lemont, Ill.
Mordant F. S. Co., Chicago.
Norfolk & Western R. R.
Ogden, Utah.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bethlehem, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrhardt, Gustave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Machinery.
Gates Iron Wks., Chicago, Ill.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Belknap Motor Co., Portland, Me.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 139 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct.

Nutmeg Grater.
Edgar Mfg. Co., Reading, Mass.

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oil Cups and Lubricators.
Sherwood Mfg. Co., Buffalo, N. Y.

Oilers.
Hammer & Co., Branford, Conn.
Williams H. A. Mfg. Co., Boston, Mass

(See Alphabetical Index, Page 116.)

Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R., Pike Mfg. Co., Pike Station, N. H

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y.
Belting & Packing Co, Ltd , N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N.J
U. S. Graphite Co., Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Belt, C. T., Washington, D C
Dudley, W. U., & Co. Washington, D C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Reber, 8 Spruce St., N. Y.

Pencil Sharpeners.
Goodel Co., Antrim, N. H.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronse Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Hall & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pilling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Maule, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Parclay, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plating, Nickel, Brass and Bronze:
Angus, C. H., Albany, N. Y.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massener, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeton, N. J.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeton, N. J.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J. Mch. Co., Waterbury, Ct
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pulley Fixings.
Foley, J. W. & Co., Cincinnati, O.

Pulleys.
Reeves Pulley Co., Columbus, O.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N Y
Kegler, Weinschenk & Ohlers, Bellevue Ia.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Wais & Roos, Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Easley, W. S., 65 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. S., 135 Duane St., N. Y.
Curley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerators.
Welland, Chas., 143 Chambers St., N.Y.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich,
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa

Riveting Machines.
Adt, Jno & Sons, New Haven, Conn.

Rock Breakers.
Gates Iron Works Chicago, Ill.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning F'dry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill.
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sheeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Johns, H. W Mfg Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O,

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Sad Irons.
Universal Sad Iron Co., Milwaukee, Wis

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.
Stewart & Baker Kochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co. 97 Chambers, N.Y.
National Saw Co., 96 Reade St., N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co, Fitchburg, Mass.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 206 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—*Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co,, Bridgeport,
Cambridge Iron & Steel Co., Camoridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24 29 West St , N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Shutter Bowers.
Wailing Patent Shutter Bower Co., Frederick, Md.

Signs.
Douglas, W. & B., Middletown, Conn.
Union Hardware Co., Torrington, Conn

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henley, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Skylights
Plenty Horticultural & Skylight Wks., 145 Liberty St., N. Y.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 104 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N.Y.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y

Sprinklers.
Shepard, Sidney & Co., Buffalo, N. Y.

Squares.
Hatch & Holmes Mfg. Co, Bridgepor Conn.

Stamped Ware.
Steel Edge Stamping & Retinning Co. Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth, Mass.
Titchener, E. H. & Co., Binghamton N. Y.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogerud, W., 61 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., L'd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co, Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw. & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa.

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Strops.
Electric Cutlery Co., 91 Chambers, N.Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

(See Alphabetical Index, Page 116.)

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass.
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Green wich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Machines.
Riehle Bros. Testing Mch. Co., Phila.

Testing Laboratories.
Riehle Bros. Testing Mch. Co., Philadelphia.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Tire Cement.
Am. Trading Co., 182 Front, st., N. Y

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co. New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Cincinnati Tool Co., Cincinnati, O.
Hatch & Holmes Mfg. Co., Bridgeport, Conn.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, Starrett, L. S., Athol, Mass.
Tower & Lyon, 95 Chambers St. N. Y

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Shelby Steel Tube Co., Shelby, O.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills. *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilating Fans.
Huyett & Smith Mfg. Co., Detroit, Mich

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.
Tower & Lyon, 95 Chambers St., N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Robertson, O. H., Forestville, Conn.

Washers
Haskell, Wm. H. Co., Pawtucket, R. I.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa
Sternbergh, J. H. & Son, Reading, Pa.

Washing Machines.
Diether & Barrows, Ft. Wayne, Ind.
Wayne, Anthony Mfg. Co., Ft. Wayne Ind.

Water Heaters.
Kemp, Clarence B., Baltimore, Md.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Blinds.
Durstine, Jacob, Wooster, O.

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Miller & Van Winkle, 102 Walker St.,
New Haven Wire Mfg. Co., New Haven, Conn
Prentiss, Geo. W. & Co., Holyoke, Mass
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co, Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cloth Holders.
Hamilton-Rankin Hdw. Co., Arkansas City, Kan

Wire Cutters.
Cronk Hanger Co., Elmira, N. Y.
King, J. H. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Deer Rails.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire*

Wire Fence Stretchers.
Wire Fence Supply Co., Indianapolis, Ind.

Wire Goods, *Manufacturers of.*
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Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
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Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
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Wire Nail and Tack Machines.
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Braddock Wire Co., Pittsburgh, Pa.
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Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
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Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
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Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
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Wire Rope, Iron and Steel *Makers.*
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California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Woodenware.
Tucker & Dorsey Mfg Co., Indianapolis, Ind

Wood Mantels.
Ironton Wood Mantel Co., Ironton, O.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
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Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

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Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Rhode Island Tool Co., Providence, R. I
Tower & Lyon, 95 Chambers St., N. Y.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

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Edes, Edw. L., Plymouth, Mass.

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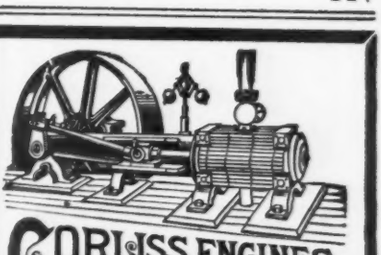

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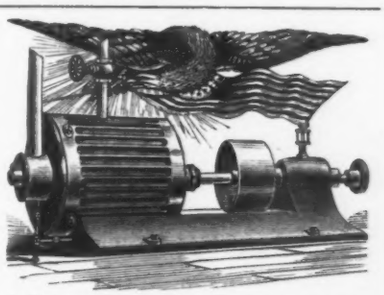

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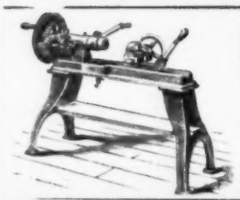

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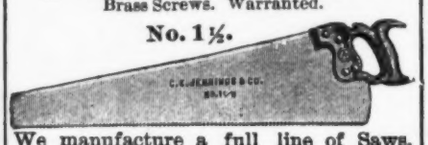

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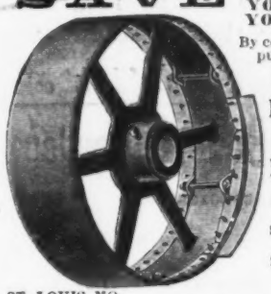

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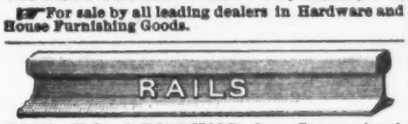

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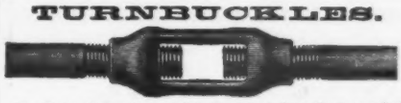

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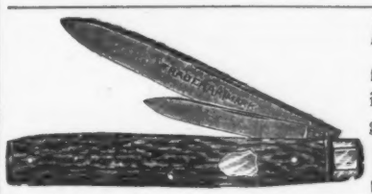

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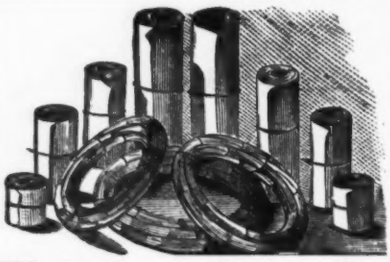
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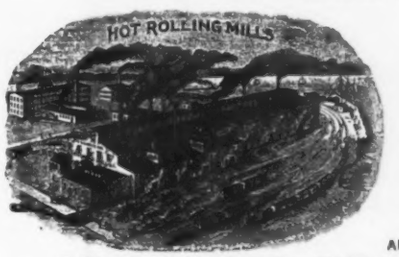

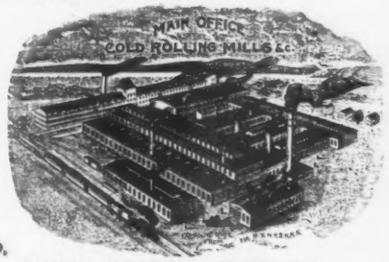

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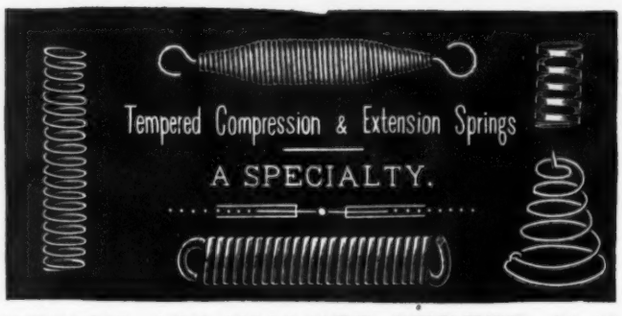

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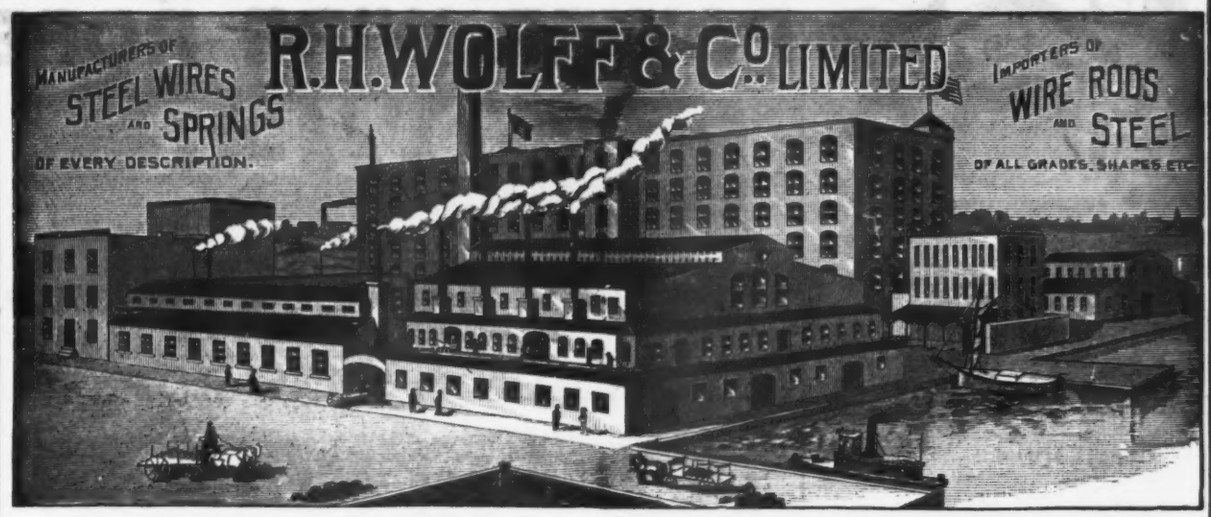

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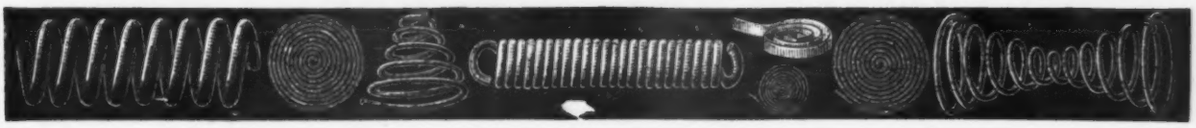

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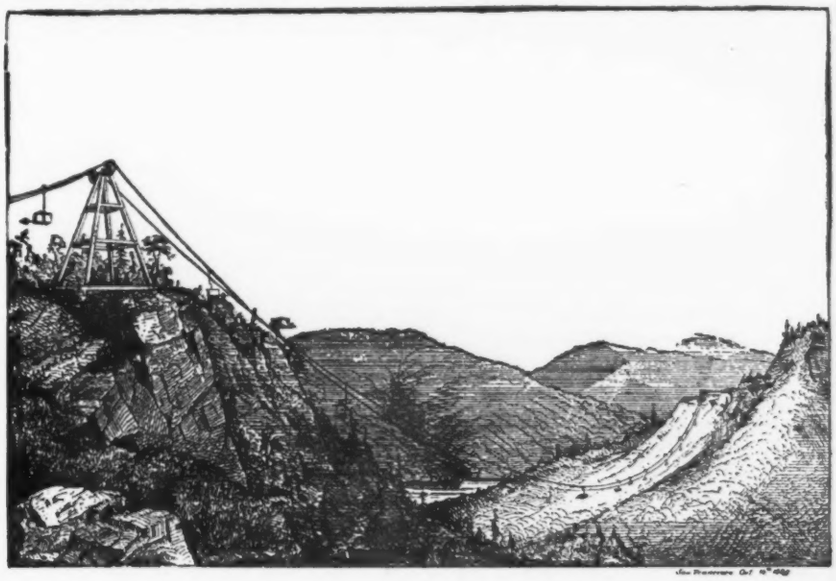

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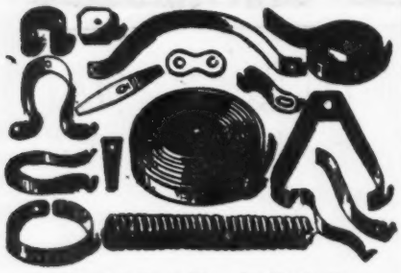

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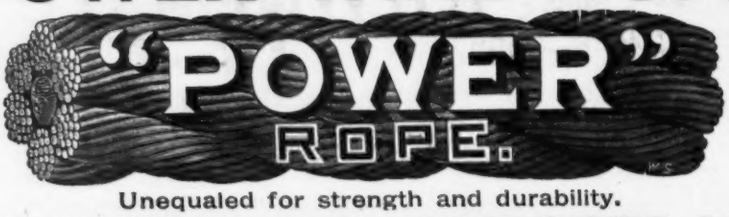

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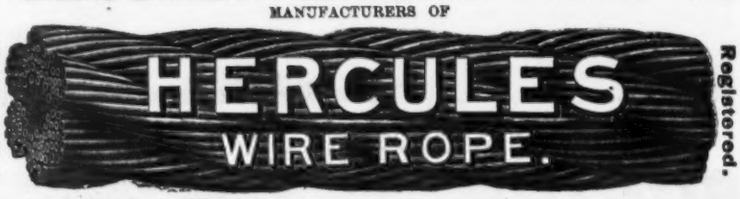

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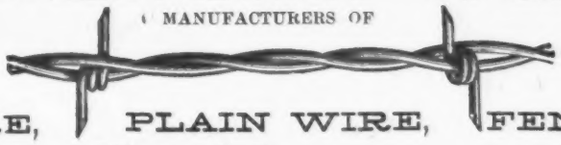
BARBED  WIRE,
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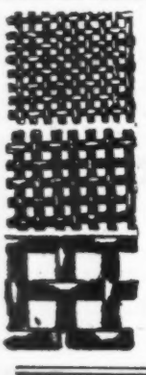

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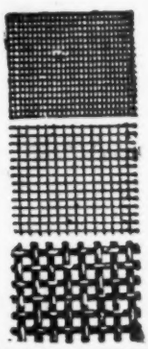

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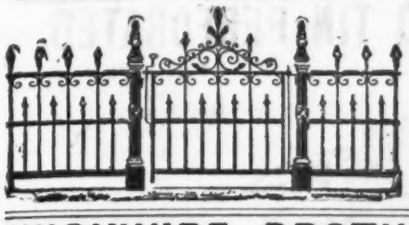

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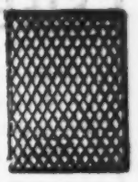

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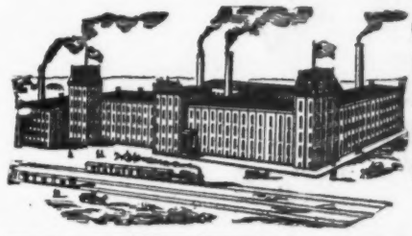

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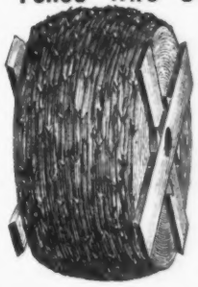

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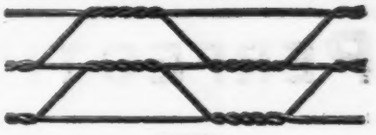

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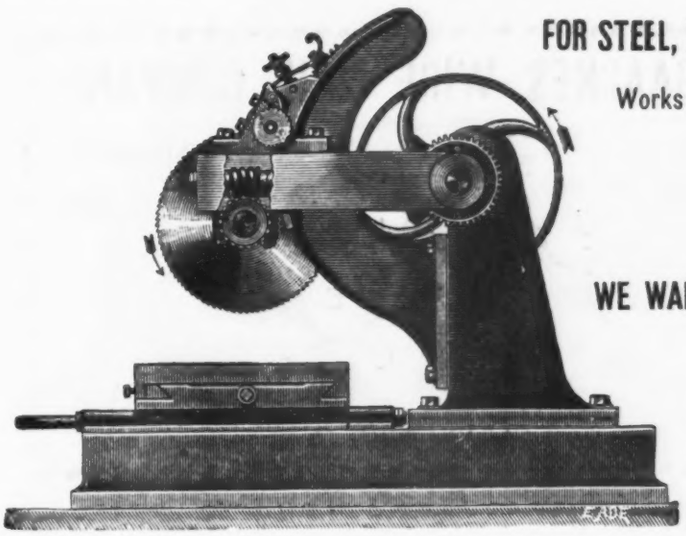

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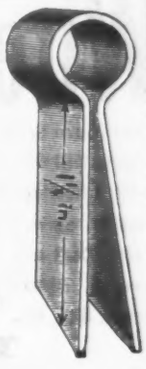

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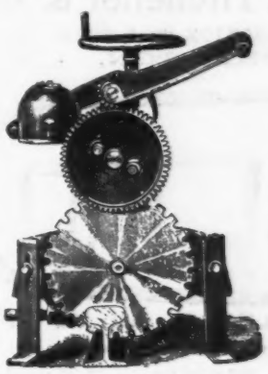

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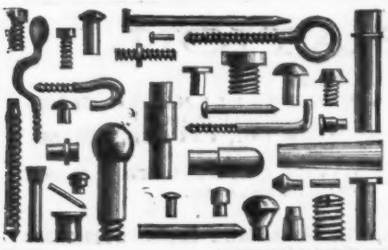

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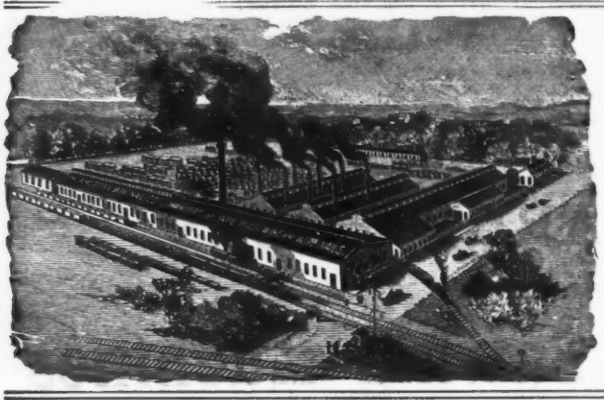

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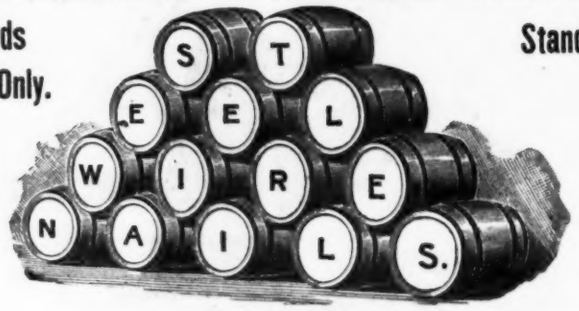

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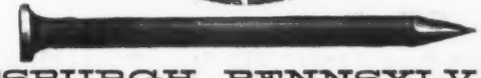

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Forged nick.
Requires the use of only one bit.
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Is cold forged, and entire surface has a metallic skin.

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Patented May 10, 1887; July 19, 1887; July 10, 1888. Other patents pending.

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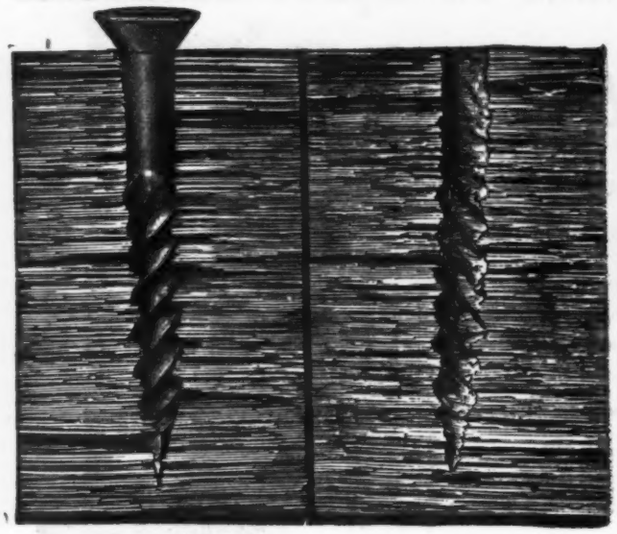
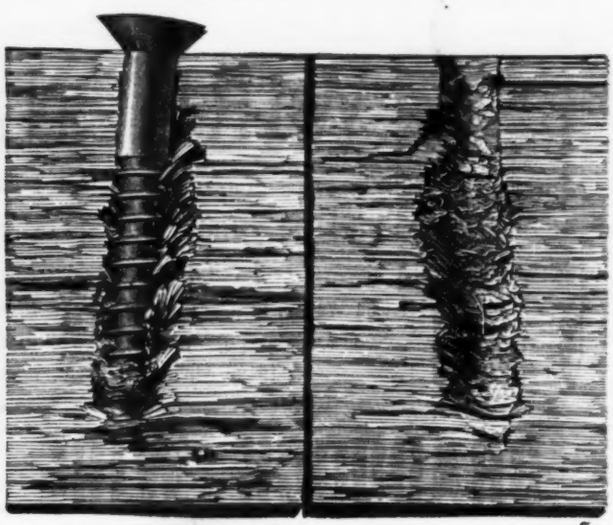


THE "ROGERS DRIVE SCREW,"
Driven with a hammer its entire length.



A COMMON CUT THREAD SCREW,
As ordinarily inserted, *i. e.*, driven two-thirds of its length with a hammer and the balance with a screw-driver. Fibres of the wood are necessarily broken, and holding power of screw much impaired.

Should be driven with a hammer its entire length.

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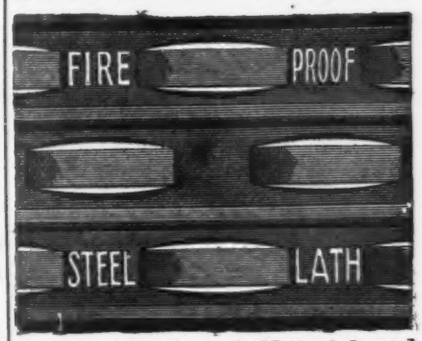

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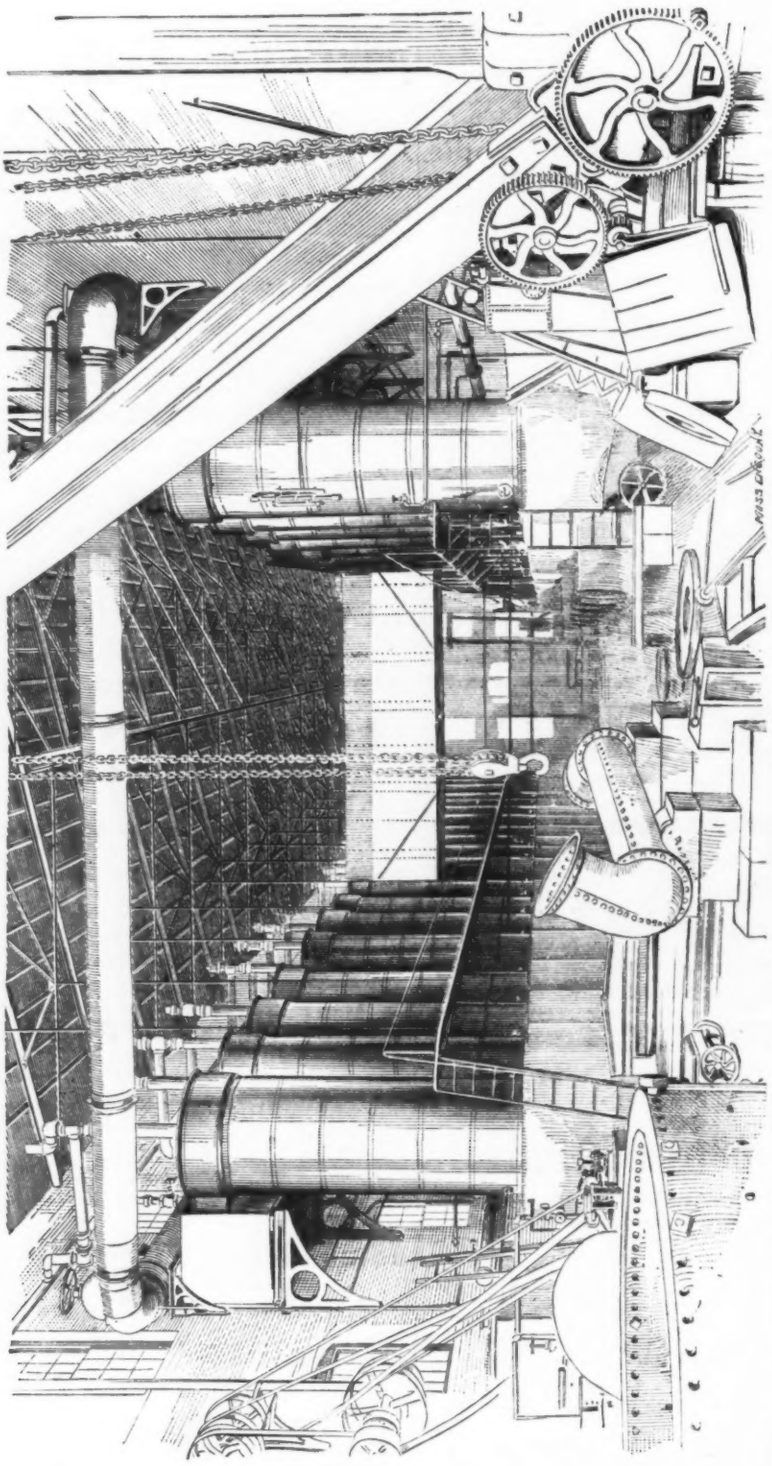

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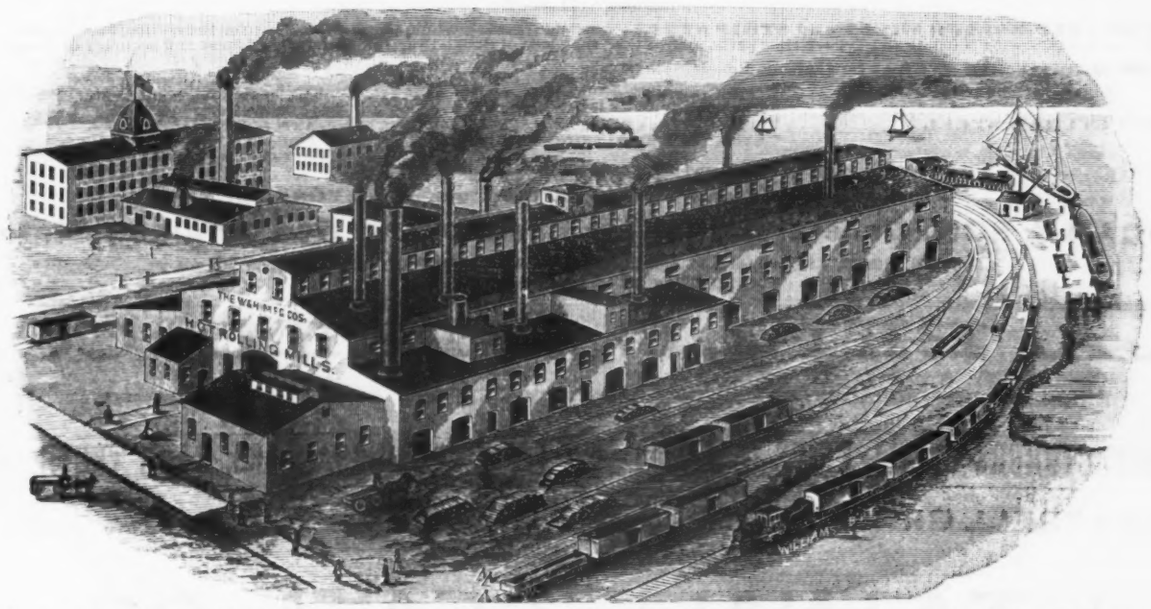

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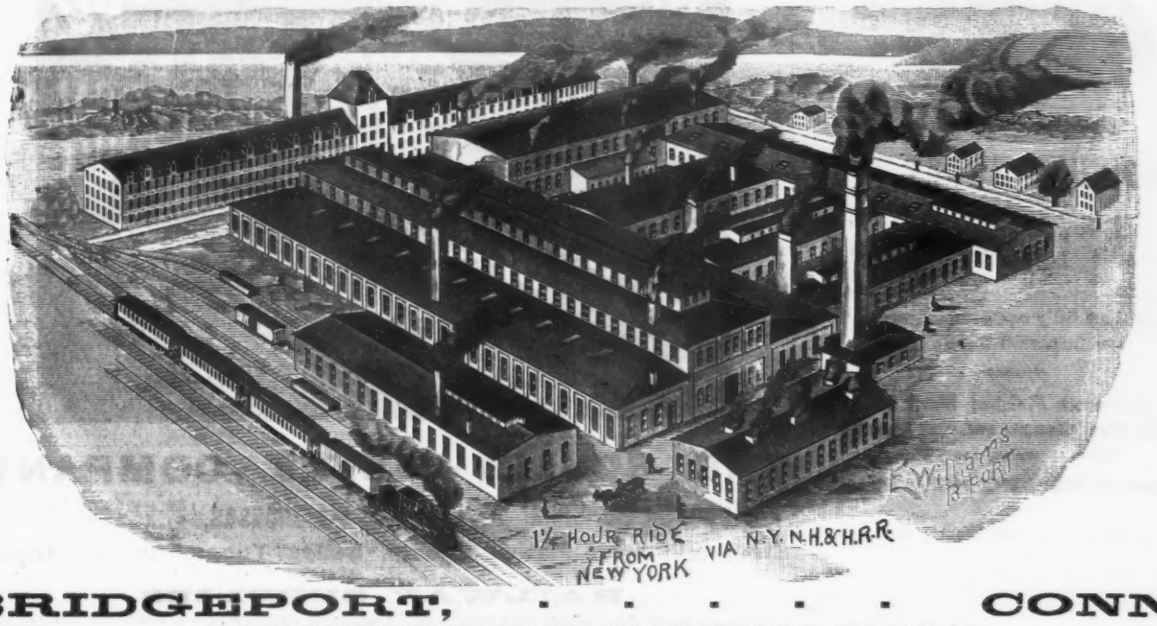

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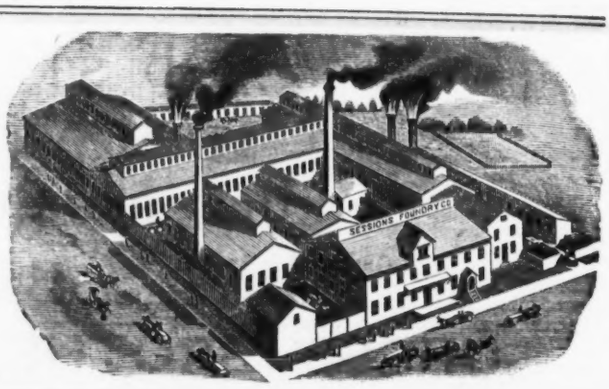

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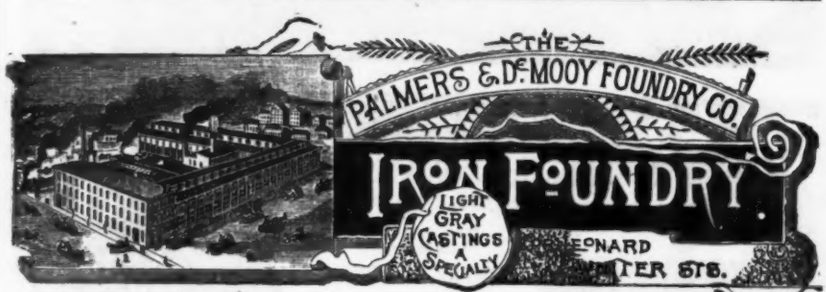

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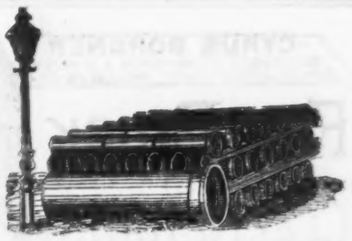

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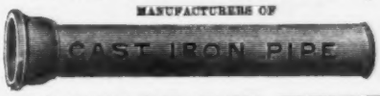

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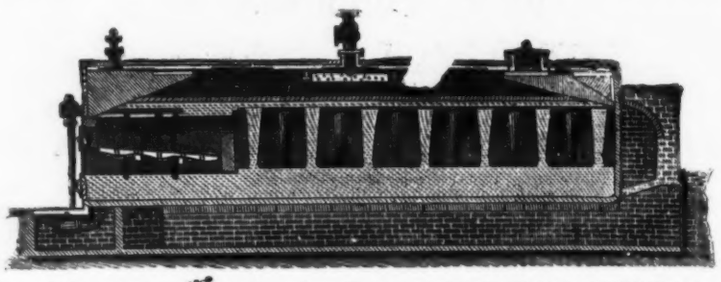

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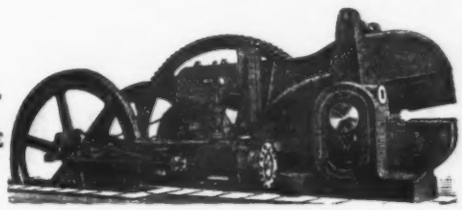

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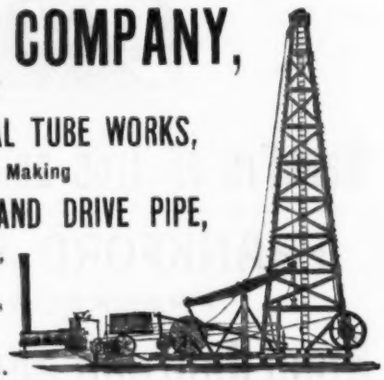

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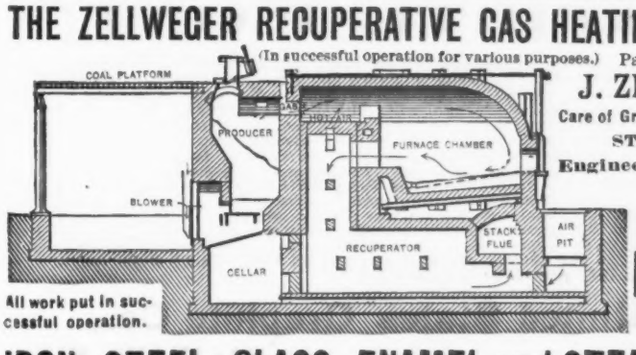

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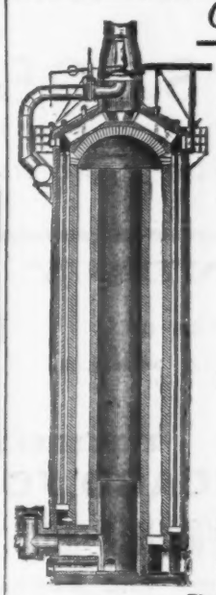

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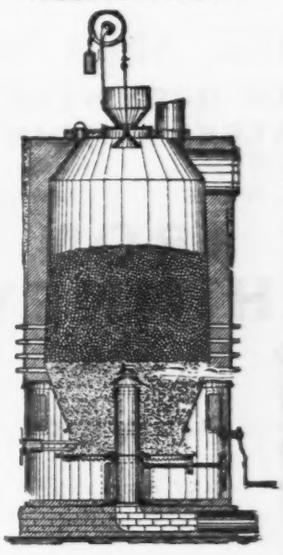

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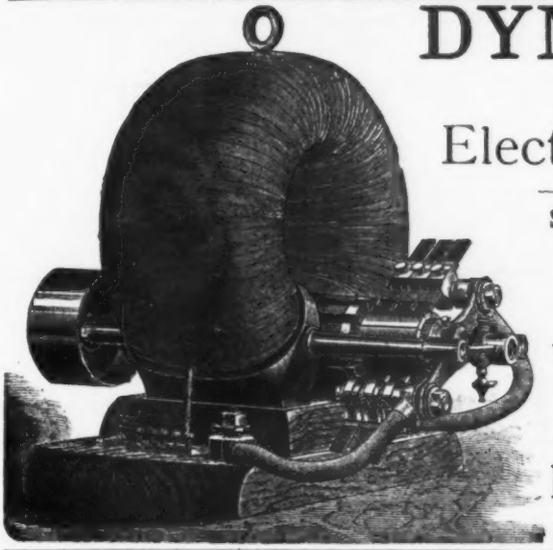

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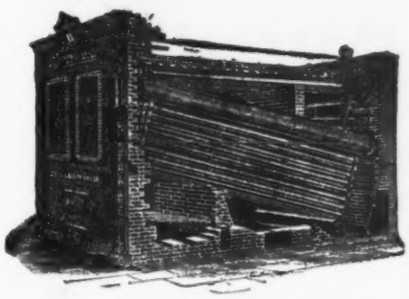

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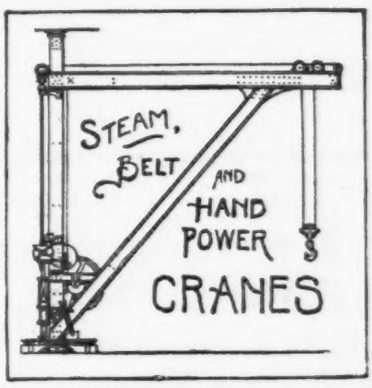

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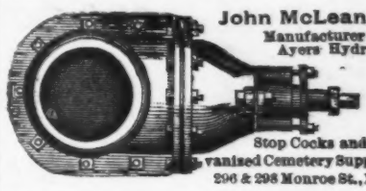

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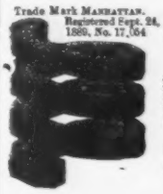

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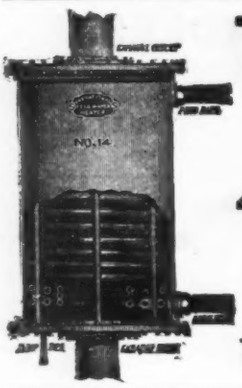

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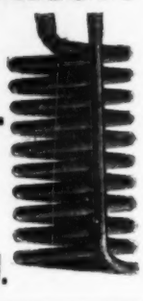

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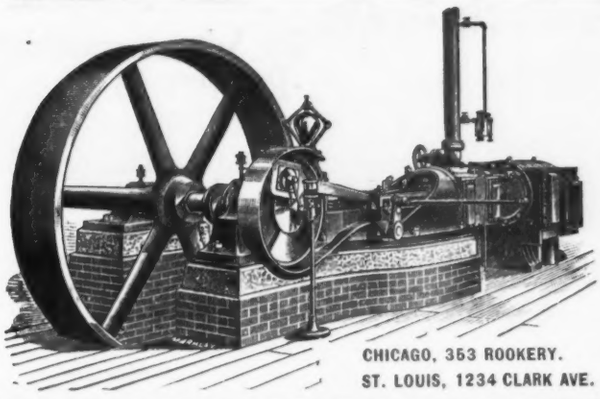

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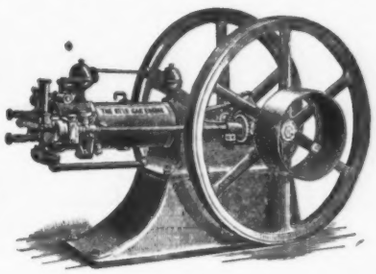

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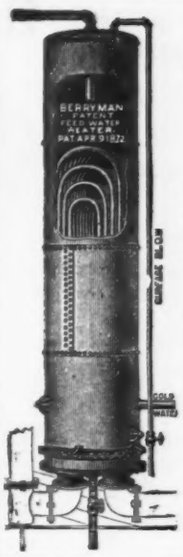

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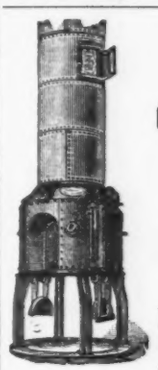

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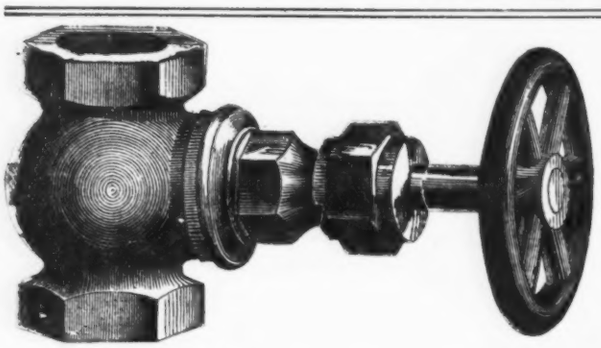

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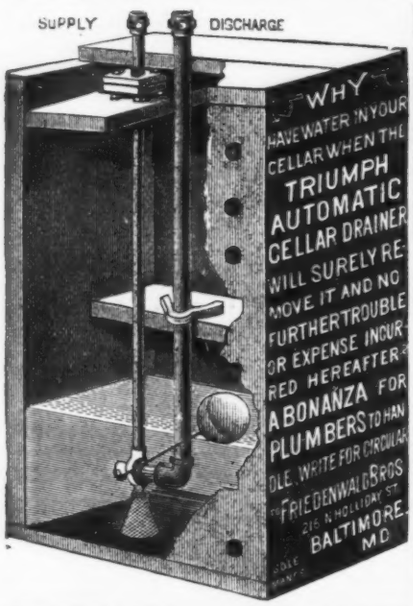

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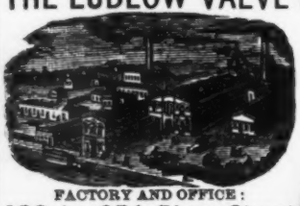

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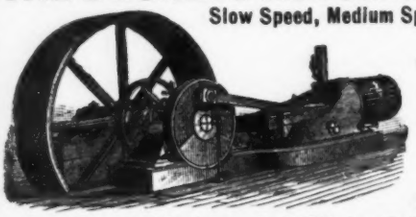

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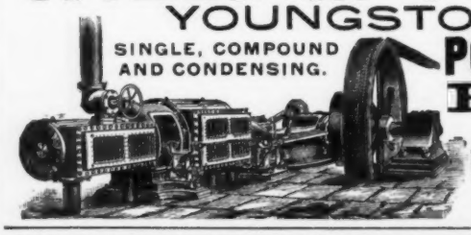

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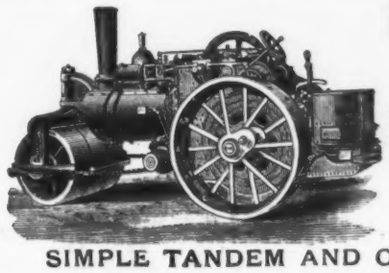

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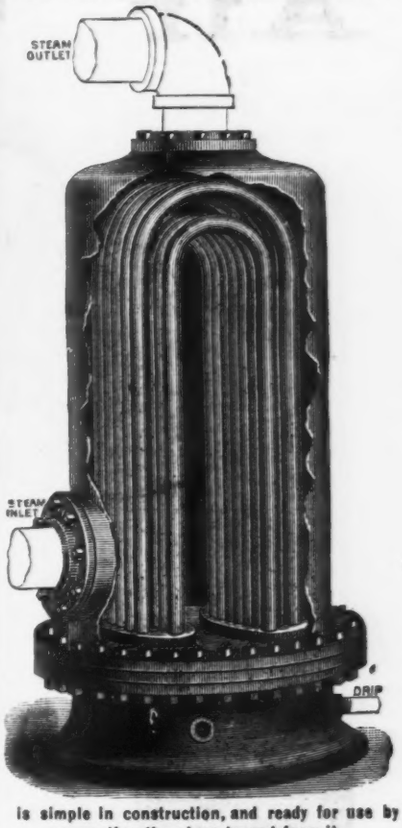

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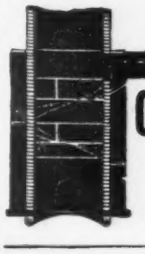

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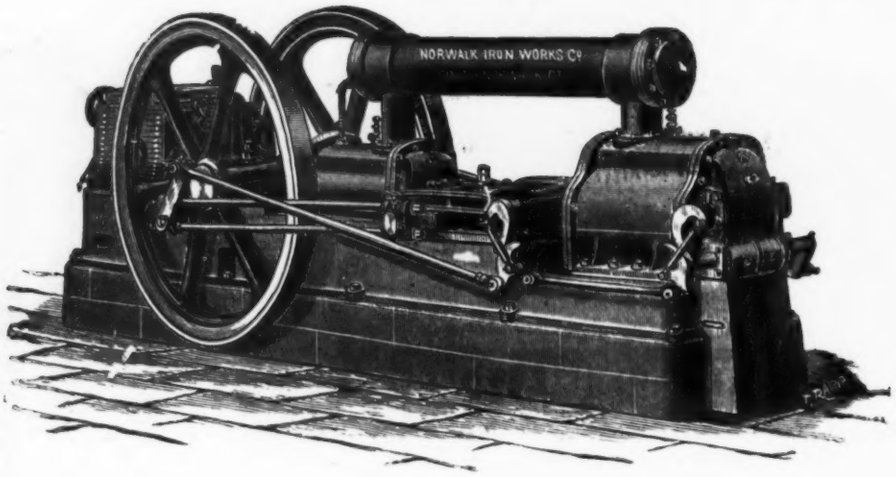

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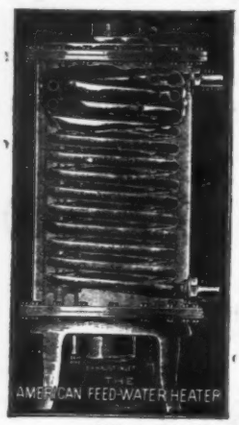

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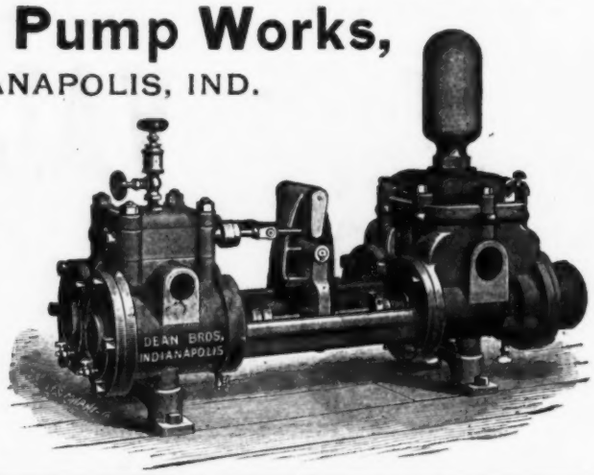

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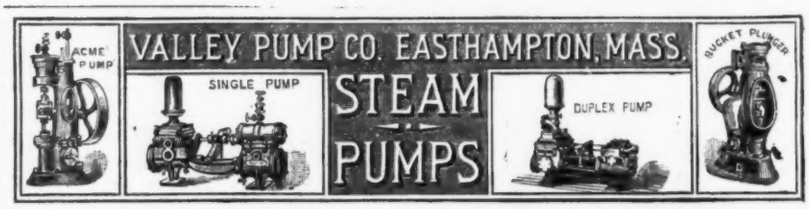

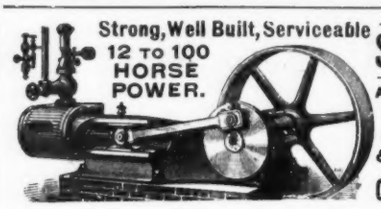

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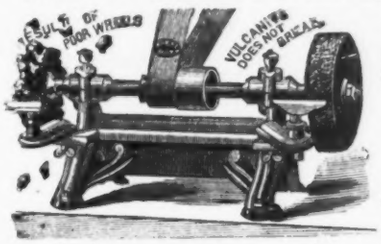

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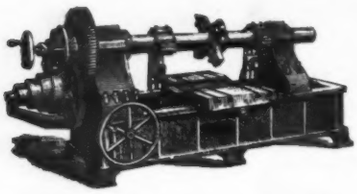

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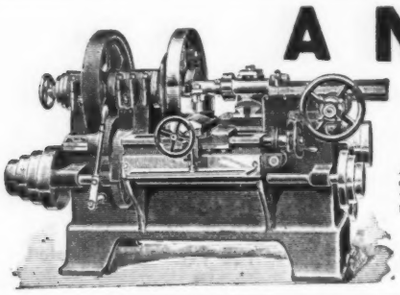

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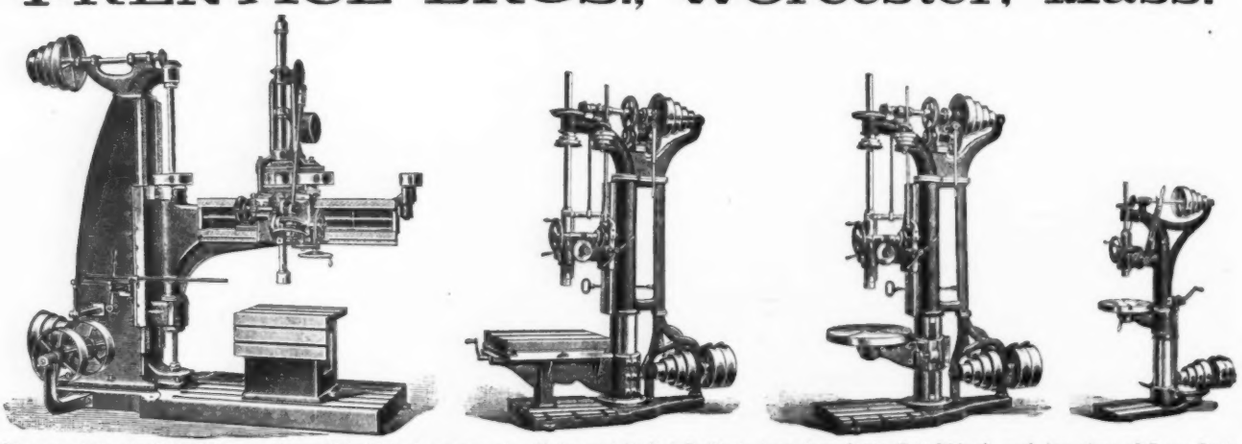

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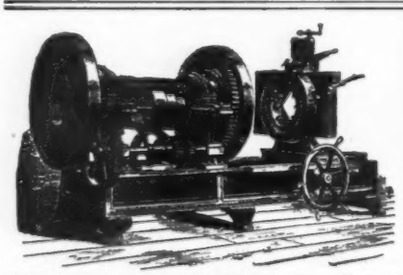

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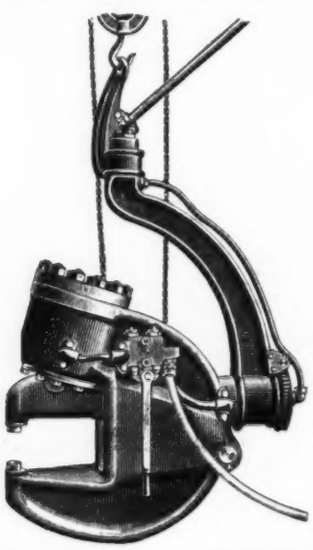

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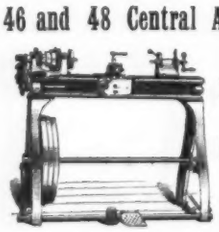

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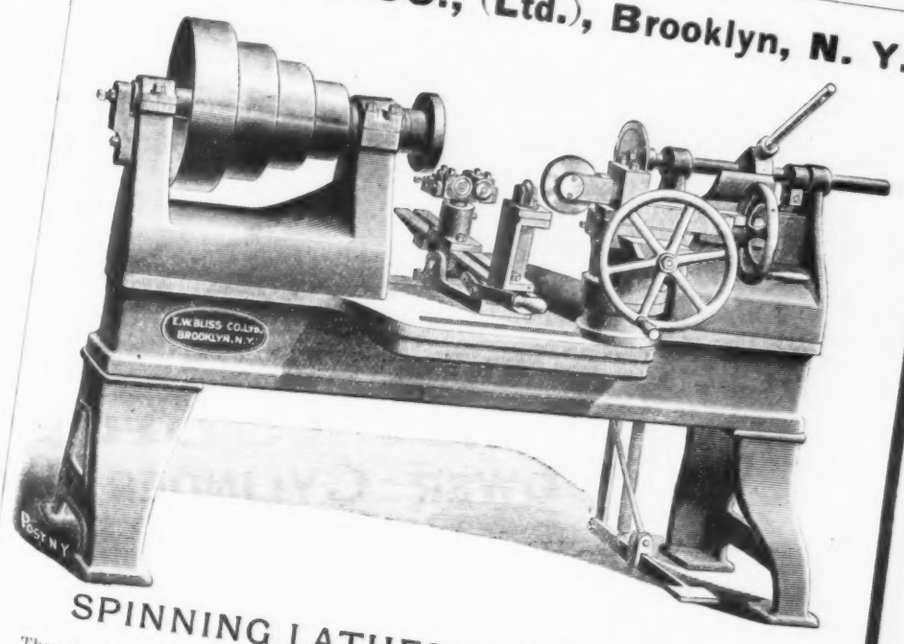

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Length of bed	54 ins.	50 ins.	76 ins.
Swing over bed	20 ins.	22 ins.	30 ins.
Swing over rest	13 ins	15 ins.	21 ins.
Diameter of cones	5 7⅛ & 10 ins	6, 8 & 10 ins.	8, 11, 14, 17 ins.
Face of cones	2⅝ ins	3 ins.	4 ins.
Diameter of T. and L. pulleys on countershaft	12 ins.	12 ins.	16 ins.
Width of T. and L. pulleys on countershaft	3 ins.	3 ins.	5 ins.
Speed of countershaft per minute	300 rev	250 rev.	200 rev.

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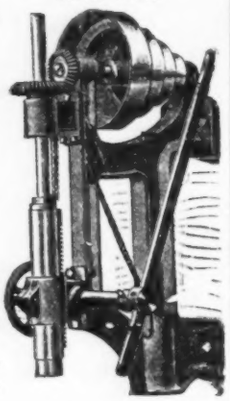

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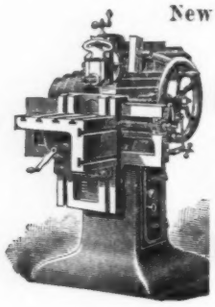

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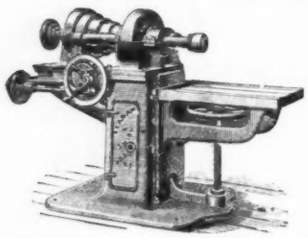

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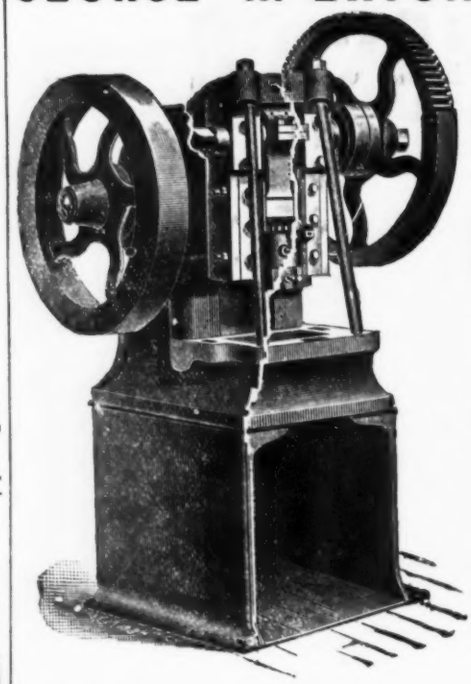

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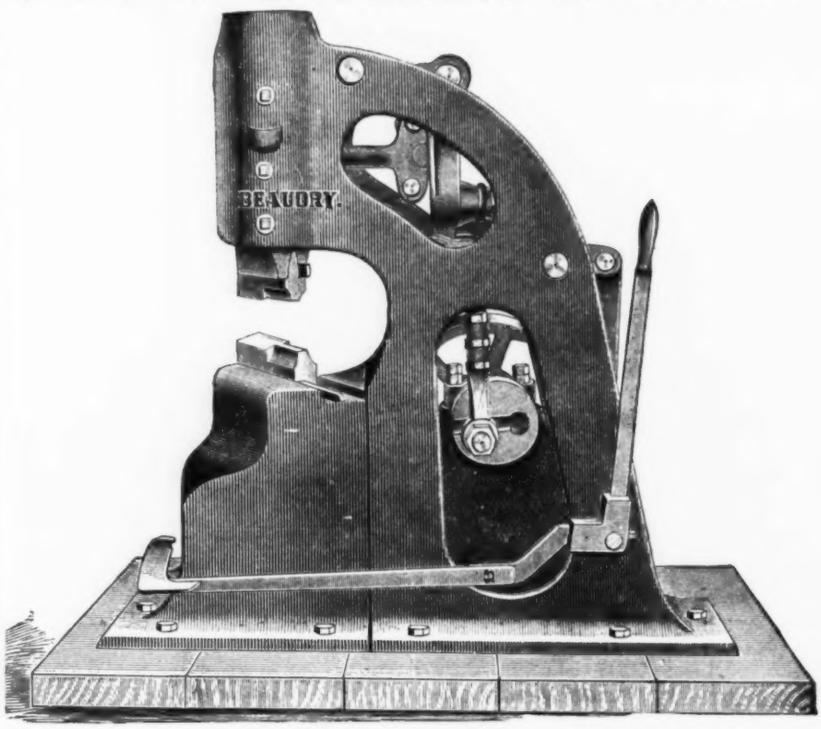

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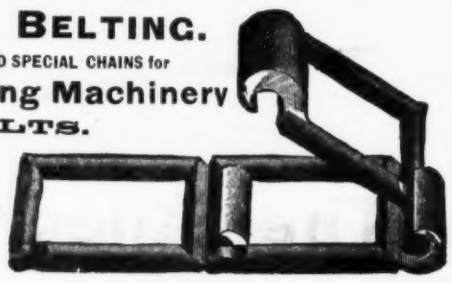

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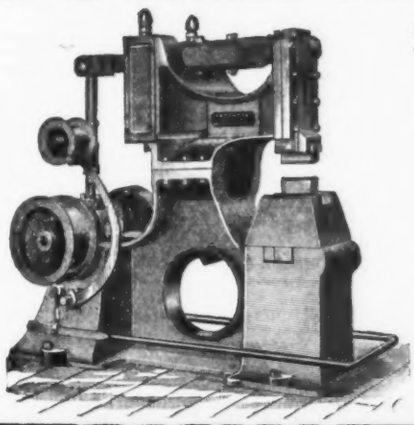

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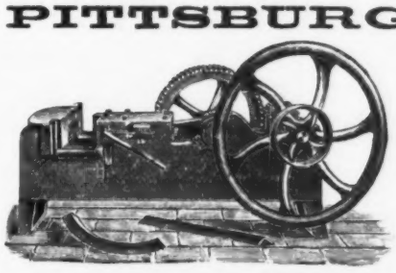

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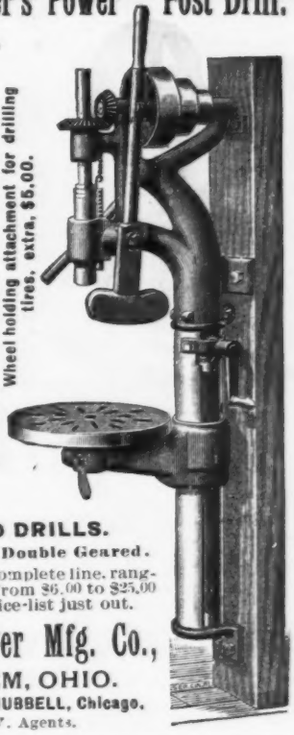

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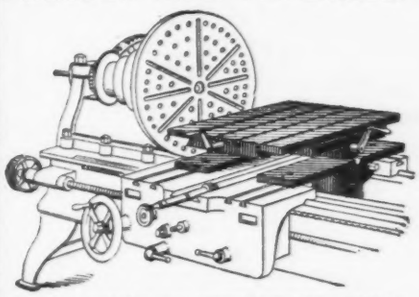

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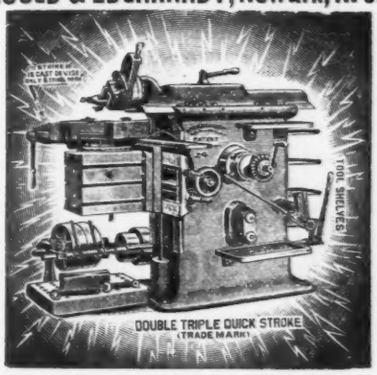

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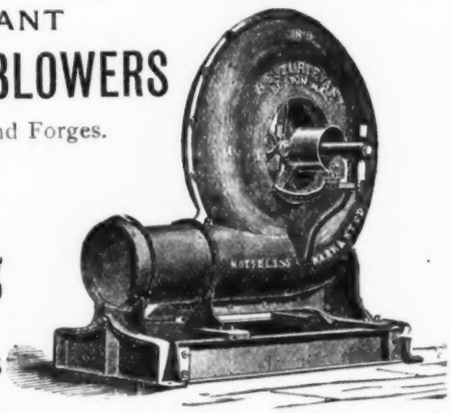

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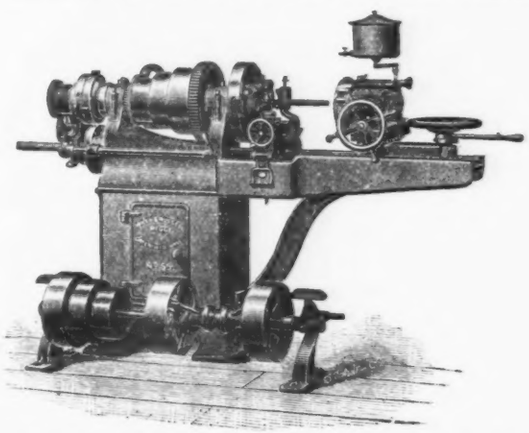

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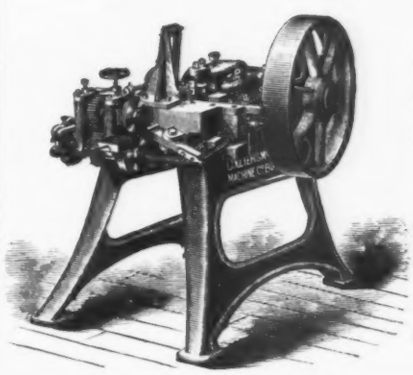

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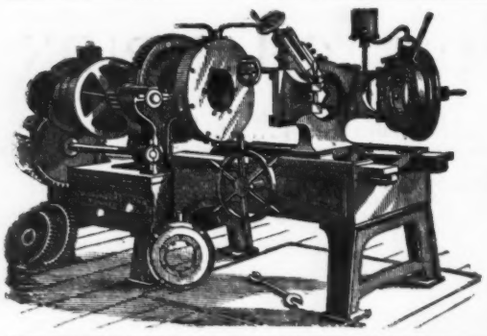

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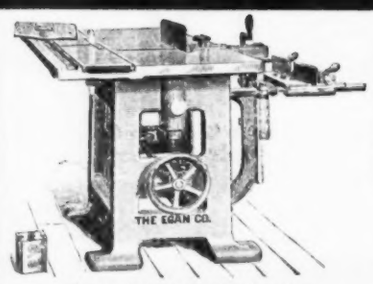

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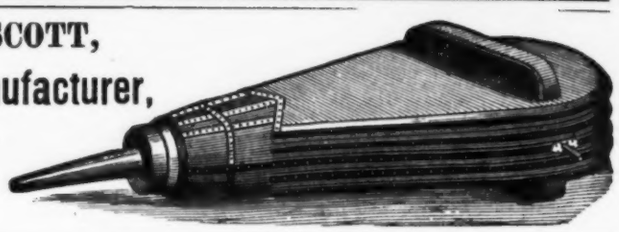

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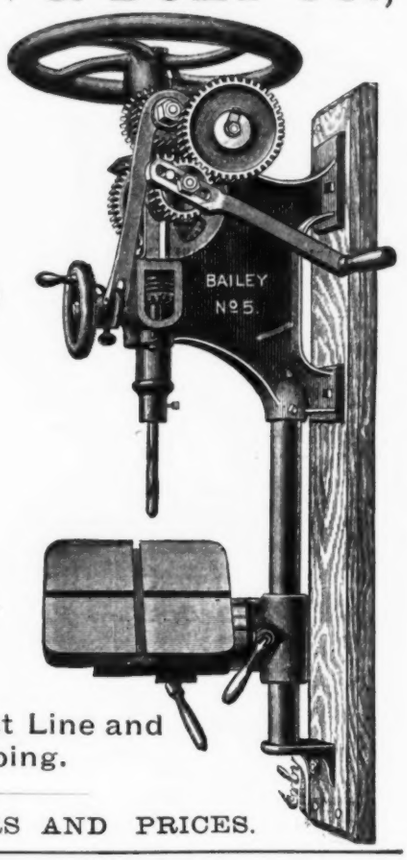

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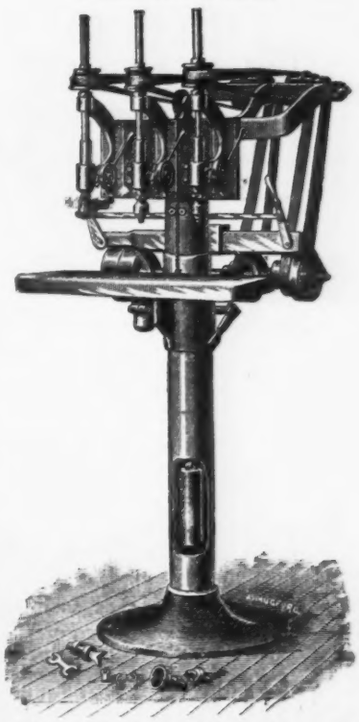

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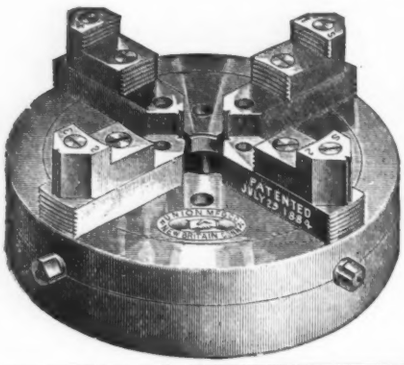

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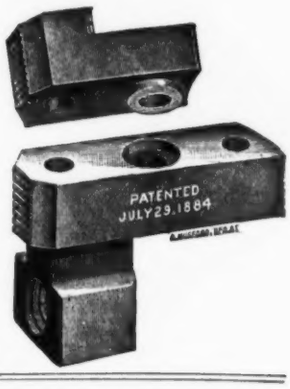

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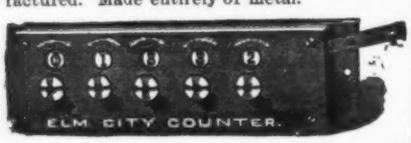

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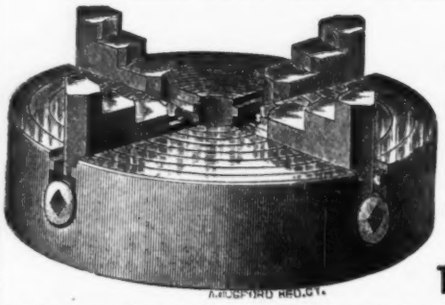

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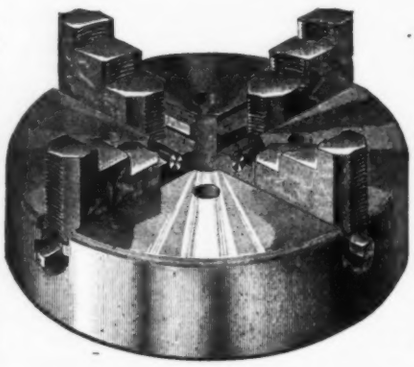

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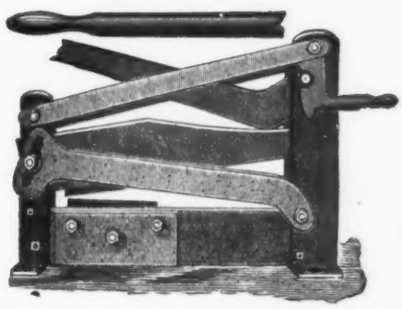

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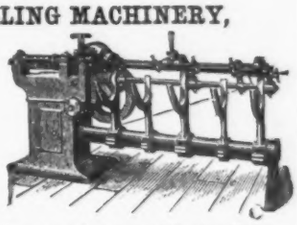

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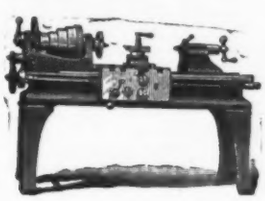

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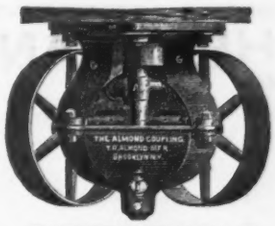

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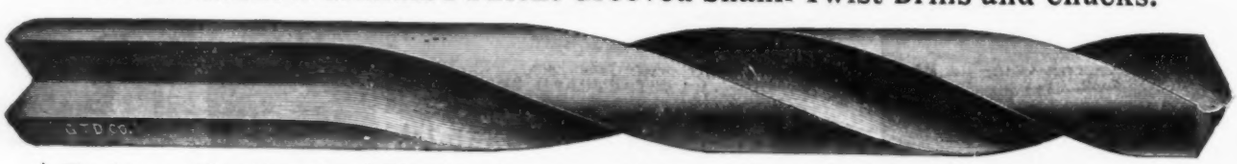

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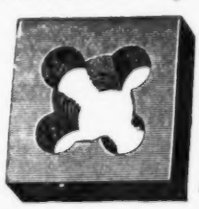

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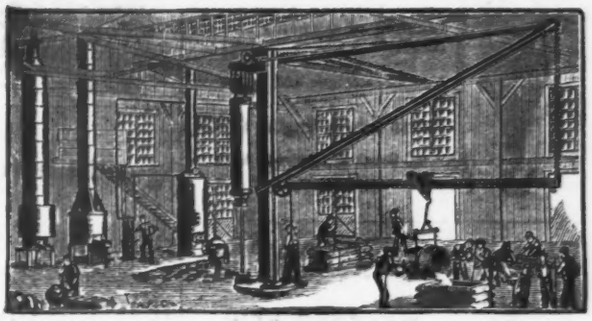

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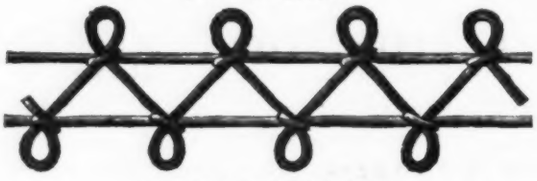

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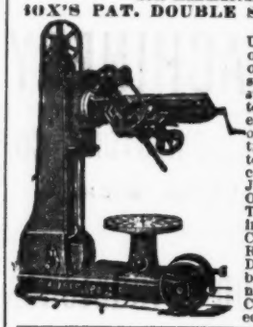

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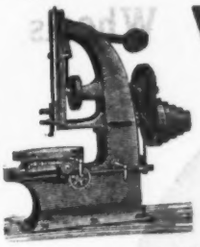

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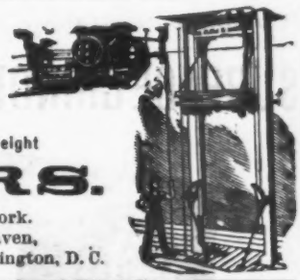

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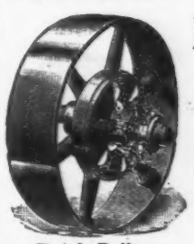

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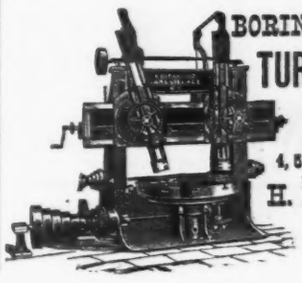

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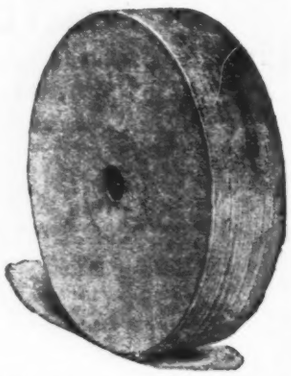

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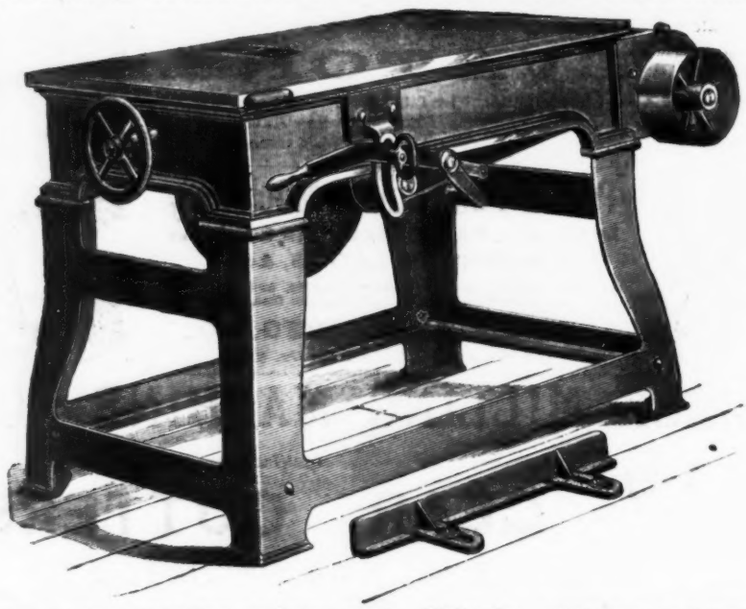

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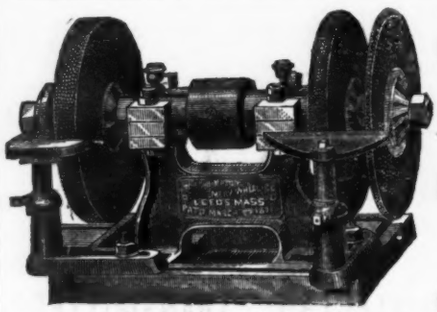

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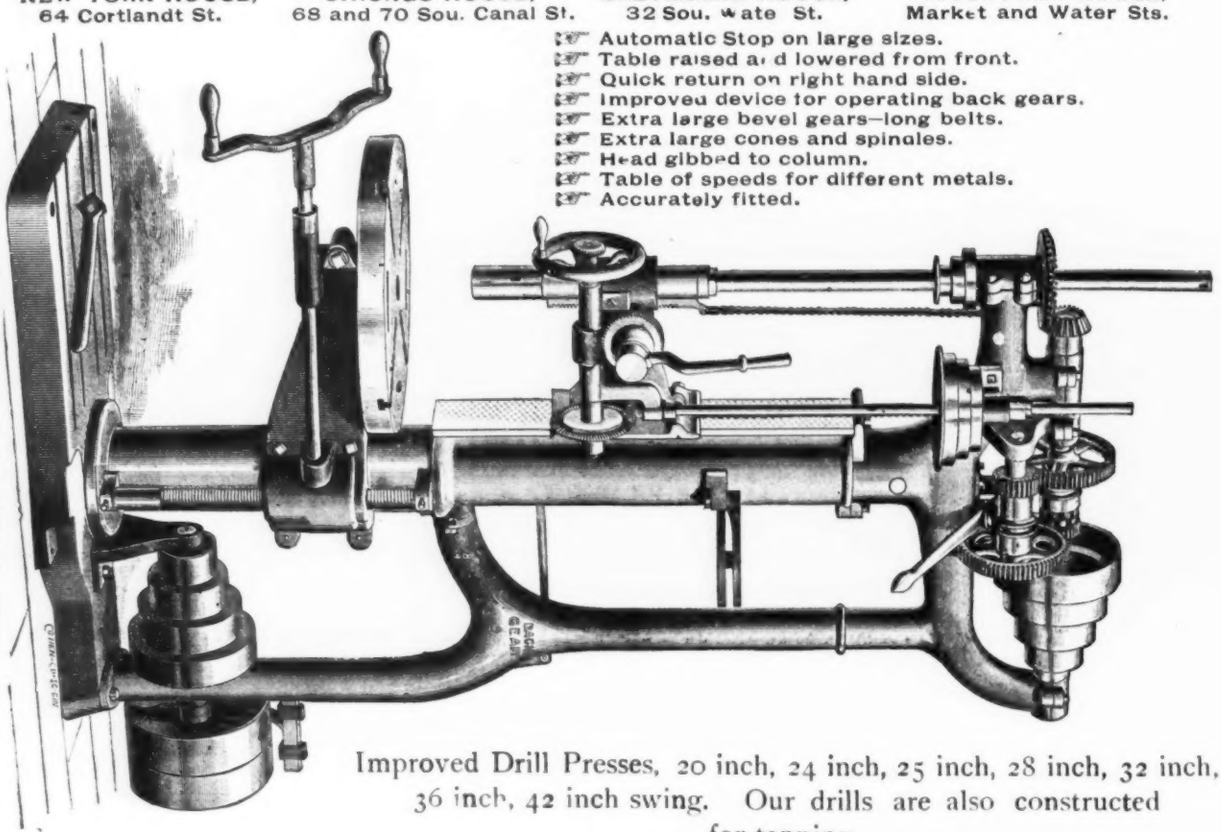

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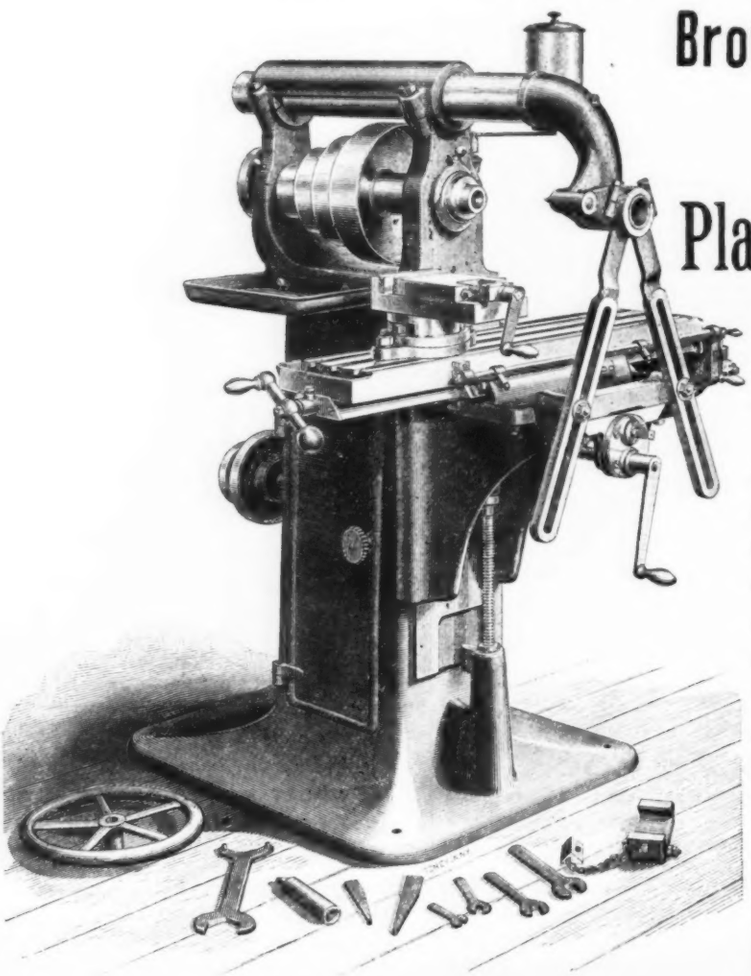

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(Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

Two Standard Gauge Locomotives.
One 7 in x 12 in. Saddle Tank, 3 ft. gauge Locomotive.
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Hoisting and Stationary Engines.
Ore Pans, Crushers, and Rolling Mill Machinery.

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Radial Drills, Engine Lathes, Pulley Lathes, Motor Gear Lathes. Special prices. Address

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1 15 H.-P. Double Cylinder, Double Friction Drum, Horizontal Hoisting Engine, with Boiler complete. New.
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1 44 in. Boring Lathe. Good as New.
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1 Power Chain Hoist, with Heavy Chain Complete.
1 Grindstone with Iron Frame. Cheap.

Send for List of Lathes, Drills, Planers, &c., for prompt delivery.

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See List of New Machinery next issue.

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1 20 in. Wheel Feed. Quick Return. Good order.
1 No. 2, 3-Spindle Garvin, Elevating Table.
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These Drills are in A1 condition.

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1 No. 2 Garvin Plain Miller. A1 condition.
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Power Presses, Screw Slotters, Tapping Machines. Write for list of 400 new and second-hand Machines ready for delivery.

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RIVETING MACHINE

60 INCH REACH.

For **Boiler and Bridge Work. Modern Style, quick working, heavy** and **powerful** and complete with full **overhead hoisting apparatus,** dies, &c. In first-class order, ready for immediate use, and will be sold low if ordered at once before moving.

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Special Slab Miller; will take 24 inches between housings and 8 feet long. Price $650.00.

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BARGAINS FOR CASH.
Write for Prices.

1 32 in. Lathe, 5 ft. bed.
1 24 in. Lathe, 10 ft. bed.
1 24 x 24 x 7 ft. Planer.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
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1 44 in. x 12 ft. " "
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Vertical Boilers and Engines. Second-hand.
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1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

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Second-Hand MACHINERY.

One Sellers single head Driving Wheel Lathe, 78 in. swing, 15½ ft. bed. Fine condition.
One Putnam Screw Cutting Engine Lathe. 36 in. swing. 12 ft. bed. A modern tool and in very fine order.
One Iron Planer, to plane 40 in. wide, 36 in. high, 6 ft long.
One Fitchburg Planer, planes 32 in. wide, 32 in high, 12 ft. long. In very fine order.
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One Brainard Milling Machine, No. 3, with vise.
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One Brown & Sharpe Universal Milling Machine, No. 3, complete with all attachments.
One Blaisdell Gear Cutter, will cut up to 40 in diameter. In fine order.

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1 Hor. Corliss Engine, 23 in. x 48 in
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1 Locomotive, 8 in Cylinders
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Several Hoisting Engines Boilers suit.
For prices and particulars, write to
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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

A Great Big Bargain.

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35 lbs. to the yard, also **Centre Bearing Steel Street Rails,** all fit to relay and in lots to suit. Apply to

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78 in. " 17 ft. " Screw Feed. Good.
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15, 18 and 25 in. stroke. Crank Shapers, Steptoe, New.
20-26 and 30 in. " Geared " " "
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24 in. x 4 ft.-5ft.-6 ft. Planers.
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54 in. x 48 in. x 12 ft. " Hewes & Phillips, 2heads.
54 in. x 42 in. x 24½ ft. "
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120 in. x 120 in. x 16 ft. " Betts, 2 heads.
100 H.-P. Westinghouse Standard Engine.
11 x 18 Horizontal Slide Valve Engine.
2000 lb. Bement Steam Hammer.
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1 14 in. x 18 in., Latest Improved Piston Inlet, used ten weeks.
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These Compressors with or without drills, receivers, &c.
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SPECIAL BARGAINS IN
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1 20 in. 3 high Muck Train. Fine order.
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All for prompt sale.

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1 72 in. wide x 36 in. high x 12 ft. long planer, with two heads on the cross rail, F. O. B. Ft. Wayne, Indiana. A1 order.

The Powell Planer Co.,
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Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No 1 Wrought Iron Scrap. Correspondence solicited.

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UNIVERSAL RADIAL
DRILLING MACHINES
Price $450 up,
That we wish to dispose of. Address
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BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. **Otto Gas Engine** equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. C. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York.

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12 Hopper Gondola Standard Gauge Cars, 50 000 lbs. capacity.
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One 30 x 30 x 10 ft. Pease Planer.
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3000 tons No. 1 bessemer.

500 tons Ferro-Silicon.

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FEED-WATER HEATERS.

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

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IN GOOD CONDITION, CHEAP, IMMEDIATE DELIVERY

200 tons of 52 lb. Johnson Girder Rails.
200 " of 35 lb. Steel Tee Rails with Fastenings.
100 " of 35 lb. Iron Tee " " "
50 " of 20 lb. Steel Tee " "
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I have also 5000 tons of second-hand Iron Rails now in use on narrow gauge road, weights 28, 35, 48, 52 and 56 pounds, with fastenings. Deliveries will be made September. October and November, which I will sell cheap.

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A modern first-class, second-hand Horizontal Engine, 40 to 60 H.-P., spot cash.

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75 TONS 16 lb. STEEL RAILS

AS GOOD AS NEW.

Located in Iowa. Will be sold cheap.

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The patents and machinery for making Corrugated Barbed Ribbon Fencing. Machinery in first-class order, will put on 120 barbs per minute. Everything in good shape.

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Large lot of Loco. Boilers,
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Can furnish stacks, grates and all fittings to suit purchasers.

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Street Rails

FIT TO RELAY.

DAN'L W. RICHARDS, & Co.
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Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.

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Gas Engine complete with 5 Ceiling Fans..... 125
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36 in Ventilating Wheels. $35. 30 in. Exhausters. 30
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A number of large Cog Wheels, Cast Iron Shafts and Bed Plates of Engines, cheap. Address

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For sale.—Wrought Plates suitable for flooring. Boiler Shells, 8 feet diameter, 20 feet long, would make good tanks. 60 ton Track Scale Old Shears and Bundling Wire.

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Cylinders 17 in. x 24 large Drum for Wire Rope, Double, 8¼ x 10 in., with Double Drums Triple Gear. Large stock of Rock Drills, team Pumps, Engines, Boilers, Machinists' Tools, &c. Let me know your wants.

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1000 tons Steel Rails, 60 lb. section, in first-class condition.

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CORLISS
Automatic Engines.

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ELECTRIC LIGHT, HIGH SPEED AND SLIDE VALVE ENGINES IN FIRST-CLASS CONDITION FOR IMMEDIATE DELIVERY AT VERY LOW PRICES.

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30 x 60 Corliss Engine.
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75 H.-P. Zell Water Tube Boiler.
4½ x 12 Hor. Tub. Boiler.

Pumps Hoisting Engines, Blowers and Dynamos. Berryman, Baragwanath and Wallwright Heaters. Pulleys, Shafting, Belting, Pipe and Fittings.

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Squaring Shears, 42, 48, 66 and 120 inches.
Power Punches, L. & A., Nos. 2 and 3 Very good.
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Planers, 12 ft. x 5 ft. x 18 ft., 42 in. x 10 ft., 32 in. x 8 ft.
Drop Hammers, 700 and 1000 lbs
New Upsetter and Header, upsets on end or any point on rod, made for ¾ rods and smaller. Send for circulars
Pipe Threaders and Cutters, 2 and 4 inch.
Filing Machines, 2 small Universal Light work.
Wood-Working Machinery of all kinds.
Write me before purchasing.

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We own and offer for sale, in lots to suit, about 500 tons of selected second-hand 30 lb. Tee Iron Rails and Fish Plates; also 7 complete Switches.

This material has been but little used and is as good as new.

Also one second-hand Steam Inspection Car; one second-hand Logging Engine, Upright Boiler, eight second-hand Push Cars. All the above for 3-ft. gauge.

Ready for delivery now.

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BRONSON BROS.,
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Four miles of 30 lb. second-hand Steel Rails, Splices and Bolts complete suitable for relaying. August delivery will answer. Address, with full particulars and price,

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60 tons capacity. Nearly new. For immediate removal. At a bargain, cash or trade.

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2 35 H.-P. Hor. Engines. New.
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500 8 in. and 9 in. Cast Iron Truck Wheels.
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24 Tanks 2d different sizes.
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1 Electric Combination Car. New.
60 Dynamos new, at price of 2d
3 Carloads Street Railway Chairs, new, 12 cents each to close them out.
6 Otto Engines, 2, 7, 10 H.-P.

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A fully equipped Machine Shop in Chicago, with a good business. Ground and building, or so much as may be required, can be leased if desired on favorable terms. Address
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100 tons of Floor Plates, good and strong, sizes 2 x 4 and 2 x 6 feet, 1 inch thick. New, never been used Made of best foundry iron; no cheap scrap. For prices, address
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Attention. Contractors and Builders.

We are prepared to furnish on short notice Steel Rails cut to any length.
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To exchange stock in an Electric Light Company, now running, with a good trade, for one 24 inch swing or larger lathe, new or second-hand, in good condition, to take in about 8 or 10 feet between centres. Address "ELECTRIC," office of *The Iron Age*, 96-102 Reade St., N. Y.

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A high class machine shop having surplus equipment solicits contracts for medium or high class work Switch into shop, traveling cranes, best shipping facilities. Location, Ohio. Address
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SPECIAL TO MANUFACTURERS!!

Beautiful factory site in Buffalo, the City of Destiny, near all shipping stations 170 x 900 feet; N. Y. C. R. R. switch full length of property I will advance one-half money necessary for erection of permanent buildings.
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Valuable Manufacturing Property.

Having purchased the Auburn Manufacturing Company's plant, with greater facilities for manufacturing carriage forgings, which my increasing trade demands, I offer my present plant for sale, which consists of two-story stone and wood building 60 x 30, and three-story stone and brick building, 75 x 45. Also forge shop, 22 ft. posts, 150 x 54, with large double windows between each bent. 50 x 30 boiler house Splendid water power, 11 ft. head.
One 24-in. American Turbine.
One 24-in. Little Giant Turbine.
200 ft. 2⅞ Cold Rolled Iron Shafting.
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60 ft. 2 in. Cold Rolled Iron Shafting.
Furnished with self-oiling boxes Water wheel governor: 4-ton Buffalo Scales The premises cover about 2½ acres. Shipping facilities of the best Located near N. Y Central and Philadelphia and Reading depots. Will be sold cheap and on easy terms. For particulars address
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Splendidly located in a thriving Western City, lying adjoining main line of prominent railway. Every convenience of receiving and shipping over five railways; favorable freights, and floor space exceeding 100,000 feet, sufficient extra land for additions. Running full with capacity of 150 H. P. Would sell the whole with a business well-established for many years, or would form an association with good party for the manufacture of goods adapted more to spring and summer trade, the opposite of present output of fall and winter goods. We consider this an opportunity rarely offered. Would take half interest in a satisfactory connection with agricultural goods or similar class. Good reasons will be given for making this proposition. This party would be pleased to share the management of the business with an equal partner or retire the whole care of it if the association proves satisfactory.
"X. O. F.,"
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FOR SALE.

A Tack and Small Nail Factory, consisting of ten Reed Machines with automatic feeders; six Blanchards; two Wire Nail Machines one large, one small; two Double-Point Tack Machines; one Glazier-Point Machine; one Heel Nail Machine; one Chopper, 36-inch knives, one Slitter; two Tumblers; two Grindstones; Engine Lathe, 15-inch swing; Drill Press, 20-in swing. Also all shafting, pulleys, belting and necessary appliances for running the plant. Located within 100 yards of a rolling mill that will furnish material very low. This machinery is practically new. Patterns for each machine. The whole will be sold at a very low price.
THE STANLEY TACK WORKS,
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Machine Shop, Iron Foundry, Pattern and Forging Shops.

Concern having well equipped and thoroughly organized departments as above, want specialties to build.

Facilities for fair, good and high grades of quality and medium light to heavy weights Would buy patents.

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Machine Shop and Foundry,

Situated about 40 miles from Cleveland, Ohio, at a low price and on reasonable terms. Cheap fuel. Address

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In Jersey City, a corner plot 100 ft. x 100 ft., paved street, sewer, water and gas. Building 70 ft x 100 ft., with 30 H.-P. Engine and Boiler and 30 ft. of 3 inch line shaft. Convenient to ferries and only 400 ft. from R. R. For price and terms, address

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Valuable Rolling Mill,

With 50 ton Blast Furnace attached. Sixty acres of land, superintendent's house, 44 tenement houses, large warehouse, machine shop, tools, &c., all in good working order. Perpetual lease on 2000 H.-P. (water) at nominal charge. Situated in the heart of the industrial center of Virginia, within short haul of the best iron ores and with unexcelled railroad facilities. A bargain can be had in this property and rarely is such a chance offered for profitable investment. Address
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The stock and business of the Curtis **Hardware Store.** This business has been established for over thirty years The stock consists of general hardware, stoves furnaces, farming implements house furnishing goods, crockery, glass-ware, woodenware, paints and oils, &c., &c. Also tools for roofing plumbing, tinning and gas fitting. This house has at present a good business in plumbing, roofing, &c., extending over an area of twenty miles, but owing to the sickness of the owner, the whole stock and business will be sold at a bargain. **It must be sold.** It will pay you to look after it promptly. Address E. F. MASSONNEAU, Committee for L. B. CURTIS.

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DO YOU wish a better location for your plant than the one you occupy at present?

DO YOU desire factory sites and buildings erected after your own plans and specifications as a donation?

WE OFFER YOU a choice of locations in ILLINOIS, OHIO, INDIANA, &c. also in the cities of CHICAGO, MILWAUKEE, ST PAUL, DULUTH, &c, with lowest freight rates to and from all points. ADDITIONAL CAPITAL ALSO PROCURED

WRITE FOR PARTICULARS

YOUR BUSINESS WILL BE TREATED CONFIDENTIALLY AND PROMPTLY.

REFERENCES GIVEN UPON REQUEST.

ADDRESS F. S. MORDAUNT & Co.

OR CHAMBER OF COMMERCE BLDG, CHICAGO THIRD NATIONAL BANK BLDG, CINCINNATI, O.

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For Manufacturers to Locate on the Line of the ERIE RAILWAY.

WATER OR STEAM POWER.

Transportation on all classes of freight at reasonable *prices*. Coal from the Pennsylvania mines, delivered direct to the factory at carload prices. One hour's ride from the city of New York; 40 trains daily; commutation $5.50 per month.

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Offers the best location on Earth and $100,000 for an iron works; $50,000 for a reduction works for silver-lead ores; $50,000 for stock yards; $25,000 for woolen mills; $10,000 for a paper mill; $5000 for a pottery; $5000 for a tannery $5000 for glass works.

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Has Natural Gas, Mountains of Coal and plenty of Iron and NERVE. We mean business. No dead-heads or adventurers need apply.

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STOCK OF HARDWARE in the City of Rochester, New York. One of the best locations in the City. Established in 1870; low rent; will invoice about $6 000. A splendid opportunity to purchase an old-established business A close inspection invited, Address

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Agency Wanted.

Man of 10 years' experience in selling staple lines of hardware and specialties wants to represent Manufacturers in Chicago and Western Territory on commission, or salary if preferred. References furnished Address

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office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

BEING desirous of engaging in the manufacture of our spring tooth cultivator, I will *sell cheap* my entire plant and stock of Hardware, Stoves, Tinware and implements. The building was constructed for the business and is as well arranged as any in the country, and located on the main line of Pennsylvania R. R. In short, it is one of the most desirable country locations for the business in Pennsylvania. For further particulars, address

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Christiana, Lancaster Co., Pa.

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Clerk for Jersey City hardware store; single, 22 to 25 years of age; must have three years' experience in the retail hardware and paint business; write a good business hand; quick and correct at figures. Salary to start, $10 per week. Address in own handwriting; reference required.

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Office of *The Iron Age*, 96-102 Reade St., N. Y.

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About 100 tons of 50 to 35 lb. second-hand iron or steel rails, fit for relaying. Address

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Have an established Manufacturers' Agency of 12 years' standing and want a large manufacturer of general hardware to represent in this market. Am a thorough hardwareman. Address

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A manufacturing company with one of the best equipped shops in New England is prepared to accept contract for the manufacture of 1000 or more Safety Bicycles for the season of 1893. Have had experience in this line and are prepared to make satisfactory arrangement with right parties desirous of putting a bicycle on the market. Address "BICYCLE 1893," office of *The Iron Age*, 96-102 Reade St., New York.

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Light Metal Specialties to manufacture to order. Correspondence solicited from parties wanting such work done. Prices reasonable.

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Tools and Second Quality Files a Specialty.

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You have goods to offer at specially low figures for SPOT CASH, that you wish disposed of without danger of interference with your regular trade address

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We have had 15 years' experience in Collecting Accounts, and understand how to deal with delinquents. Our terms are reasonable. Give us a trial.

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HARDWARE AUCTIONEERS,
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Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE TO JAIL BUILDERS.

Sealed bids will be received at the office of the County Clerk of Monroe County, Michigan, at Monroe, Michigan, until 1.30 P. M. of Wednesday, June 29th, 1892, for the erection and completion of a county jail, to be built upon a site now owned by said county, upon which is now a Sheriff's residence, to which is to be attached the jail structure now advertised for.

Each bidder shall submit with his bid complete plans and specifications of the building which he proposes to erect, which shall include all necessary steel and iron, cells and all equipments and attachments to render the building complete and ready for occupancy.

The bids shall be for the entire work as a whole, covering all plans furnished, the erection and completion of the same ready for occupancy with all the cells and appurtenances complete, and all expenses of whatever name and nature.

No bid will be considered which exceeds the sum of eight thousand dollars ($8000)

The board reserves the right to reject any and all bids. The successful bidder will be required to give bonds in the sum of the contract.

Bids will be opened by the Board of Supervisors on June 29th, 1892, at 1.30 P.M.

Bids should be sealed and endorsed "Proposals for Jail," and addressed to the undersigned.

C. H. CALDWELL,
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To furnish reasonable estimates on specialties in light metal work to order.

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Manufacturers of Clock Trimmings, Rivets, Springs, &c.

Having purchased the Machinery and personal property of Auburn Mfg. Company, we offer the

HOE, FORK and RAKE MACHINERY FOR SALE

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DAVID WADSWORTH & SON, Auburn, N. Y.

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30 in. x 60 in. Corliss Engine, built by Corliss Steam Engine Works, Providence, R. I., with attached air pump, new wheel to suit.

23 in. x 60 in., with 20-ft. segment wheel. Both in first-class condition. Now running in Mt. Vernon Mills, Baltimore, Md. Address.

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To Tube and Pipe Manufacturers, Steel Mill Owners and Capitalists

The undersigned has invented machines and processes for making seamless tubes directly from molten steel, glass or fusible material of any kind. Has also invented machines and processes for making seamless tubes from billets or bars of steel or other granular metal. The machines, full working size, are all built, but the owner having insufficient means to complete the experiments in testing them, the cost of which ought not now to be large, desires the co-operation of some one who is looking for a chance to make money. Expert examination and investigation will prove the legitimacy and extensive value of the enterprise. I will treat only with principals who send me their full address and references as to financial standing. Address

"V. B.," care Carrier 24, Boston, Mass.

Good Complete Hardware and House-Furnishing Business For Sale,

In the city of New York. An old established business in the best section of the city, with valuable lease. Address

"BEST SECTION," Box 623,

Office of *The Iron Age*, 96-102 Reade St., N. Y.

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A gentleman thoroughly competent to manage or superintend a Wire Mill, who would be willing to invest $5000 to $10,000 in an enterprise of that kind in a very favorable location. Address

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WANTED.

By a Commission House in New York City, the agency on commission for a beam and angle mill, plate and bar iron mill. Agents thoroughly acquainted with the iron business of New York City and Suburbs. Address, with particulars,

"COMMISSION HOUSE,"

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FOR SALE OR RENT.

A large four-story brick building, built for manufacturing bronze and brass goods, having 100 horse-power engine and boiler, a good cellar, large water supply from driven well on premises; four floors having an area of about 40 000 square feet, excellent light and ventilation; suitable for almost any kind of manufacturing; located in Gold street, Brooklyn, Nos. 260 to 268; about five minutes' walk from Bridge. For terms apply on the premises.

FOR SALE

Or to manufacture on royalty, Avery's Shingling Gauge, **Patent No. 472,816,** see *Scientific American* of June 11th; or send 25c. for copy of Pat. Will sell outright or by States.

Address CHANCY AVERY,
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BY A GENTLEMAN of 25 years' experience in iron and steel business and a very extensive acquaintance, to represent some Eastern house in Pittsburgh and vicinity; manufacturing interest preferred; only part of the time available and compensation accordingly. Address "W. A. H.," Box 111, Pittsburgh, Pa.

BY AN OPEN-HEARTH Steel Melter; first-class man; is experienced in making steel for steel castings. Address "G. G.," Lock Box 459, Homestead, Pa.

BUILDERS' HARDWARE Salesman, traveling the Southern States, wishes the account of some good manufacturer, to handle as a side line on commission; best of references furnished. Address "ROXY," Call Box 116, Harriman, Tenn.

AS SALESMAN, or as Bookkeeper, or to take charge of an office and correspondence; wrought iron pipe business preferred; can give satisfactory references. Address "IRON PIPE," Box 623, office of *The Iron Age*, 96-102 Reade St., New York.

TO REPRESENT in St. Paul, Minneapolis and the Northwest by an established agency, lines of hardware, staple and specialties. Address "ST. PAUL," office of *The Iron Age*, 59 Dearborn St., Chicago.

BY A PRACTICAL MAN, to take charge of hardware manufactory or light machine work; thoroughly posted in every department; long experience in handling men. Address "DETAILS," Box 526, office of *The Iron Age*, 96 to 102 Reade St., N. Y.

A COMPETENT Patent Solicitor and searcher in testing validity of patents offers his services to a substantial firm or corporation, preferably in New York City, to attend to their patent affairs and, as time permitted, to otherwise confidentially assist in business management. Address GOODWIN, office of *The Iron Age*, 96-102 Reade street, New York.

BY YOUNG MAN (26), college graduate, Junior Member American Society of Mechanical Engineers; machine shop practice, three years draftsman, technical school knowledge of chemistry; opening in any part of the country where there is chance of advancement. Address LOCK BOX 606, Andover, Mass.

I AM 29 years of age, married; have been ten years with present employers (wholesale hardware), four years as head bookkeeper; have first-class references and would like situation where a good business training will be of service. Address FRED. H. ROSS, 97 Erie avenue, Hamilton, Canada.

TWO YOUNG Hardware men, through 17 years' experience well acquainted with German, English and domestic goods, wish to represent in Chicago manufacturers and importers of hardware and cutlery. We will sell your goods and do honest work in the World's Fair City, if you can deliver the goods and quote prices. Address "M. & H.," office of *The Iron Age*, 59 Dearborn St., Chicago, Ill.

BY A TRAVELING Salesman desiring to make a change the first of the year, to represent a manufacturer of machine tools or a large dealer in machinery supplies; have had 15 years' experience as a machinist with two (2) years' experience upon the road. Address "MACHINE TOOLS," office of *The Iron Age*, 96-102 Reade St., New York.

EXPERIENCED and successful Traveling salesman of good address, well acquainted with hardware jobbers, railroad trade, implement and machine manufacturers of Chicago and tributary territory, desires the representation of some line where attention and vigorous work will be appreciated; small salary and commission preferred; first-class references. Address "W.," office of *The Iron Age*, 59 Dearborn St., Chicago.

SUPERINTENDENT.—A member of American Society of Mechanical Engineers, who has had 20 years' practical experience as follows: machinist, head draughtsman, erector of steam plants, engineering, estimating, contracting and office work and superintendent of large engine works, is available for responsible position as manager, superintendent or assistant of manufacturing establishment. Address "MULLACH," Box 33, Office of *The Iron Age*, 96-102 Reade Street, New York.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

A COMPETENT, first-class Salesman with an established trade to sell builders' hardware in New York City and Brooklyn; best references required. Address "HARDWARE," P. O. Box 133, Station W, Brooklyn, N. Y.

A ROUGHER and Catcher for 12-inch mill; also a finisher who has had experience on hand rounds; give references and state pay expected. Address "HAND ROUNDS," Box 623, office of *The Iron Age*, 96-102 Reade street, New York.

A STEADY, reliable Heater for 12-inch train; one that has had experience in heating crucible and high carbon steels; give references, state experience, where employed and pay expected. Address "HIGH CARBON," Box 623, office of *The Iron Age*, 96-102 Reade St., N. Y.

A FOREMAN for our hardware department, who has had a general experience in the manufacture of builders' hardware or similar business; he must be a first-class man in every respect and competent to manage men; write, stating particulars; correspondence confidential. VAN WAGONER & WILLIAMS CO., Cleveland, O.

A FIRST-CLASS PLATER for oxidized work in silver, nickel, copper and brass. Address "WIRE WORK," 624, office of *The Iron Age* 96-102 Reade St., New York.

CITY HARDWARE BUYER wanted by a wholesale house; one who is experienced, quick and thoroughly familiar with the business may address "BUYER," Box 623, office of *The Iron Age*, 96-102 Reade St., New York.

FIRST-CLASS Experienced Salesman; one familiar with railroad trade, to sell high grade material; bar iron and plates. Address, confidentially, "W. B.," office of *The Iron Age*, Bank of Commerce Building, St. Louis, Mo.

SALESMAN visiting retail hardware trade in Maryland, Virginia, North and South Carolina and Georgia to take as side line on commission, first-class staple article, largely in use; experienced hardware salesmen can make good pay; first-class men only need apply. Address, with full name and references, "GOOD LINE," Box 62, office of *The Iron Age*, 96-102 Reade St., New York.

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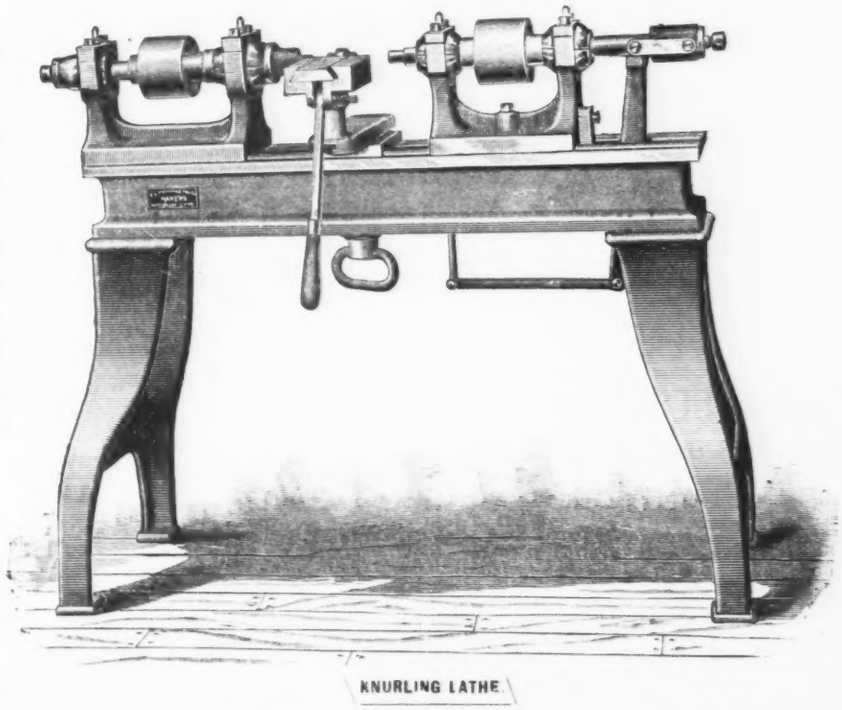

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NO QUESTIONS ASKED

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High Grade Open Hearth Steel produced by the Adams-Blair Process at less than the Cost of BESSEMER Steel.

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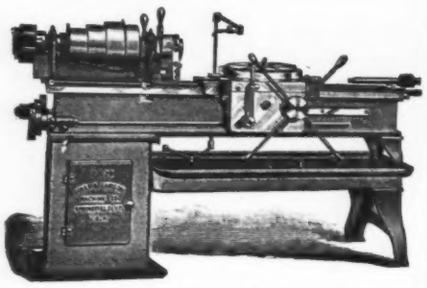

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Offer aluminum guaranteed to be equal in purity to the best in the market at the lowest rates obtainable. Prices given on application. Aluminum sheet, wire and castings at best rates.

Aluminum Polish, very efficacious and non-poisonous, suitable for household use as well as for manufacturing purposes.

Aluminum Solder.

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AGENTS We want one in every town to handle the DEALERS
JACK FROST FREEZER

A Scientific Machine made on a Scientific Principle. Save their cost a dozen times a year. It is not mussy or sloppy. A child can operate it. Sells at sight. Send for prices and discounts.

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Makes Ice Cream in 30 Seconds.

CENTERS FOR 24 INCH SHAPER.

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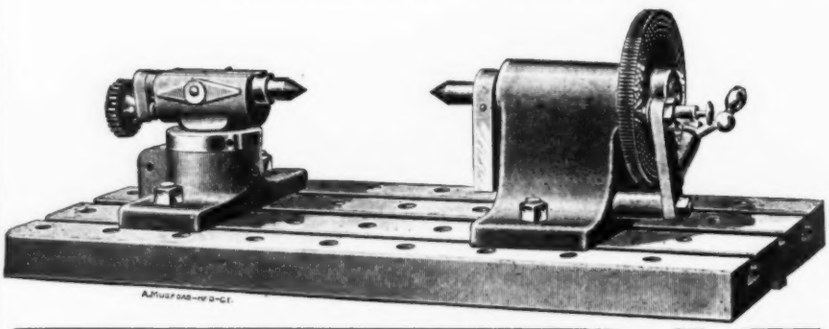

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"IT SPEAKS FOR ITSELF."

We are in receipt of the following letter from one of the largest hardware houses in the South:

"Nearly every kind of Lawn Mower made has been sold in this market, but the 'Stearns' now takes the 'cake' over all others. It is regarded here as the very best and about perfect. Whenever we sell one of the 'Stearns' machines, it is sure to sell half a dozen more for us. We have come out victorious in every contest we have had."

E. C. STEARNS & CO.,

SYRACUSE, N. Y.

AUSABLE HORSE NAIL CO.

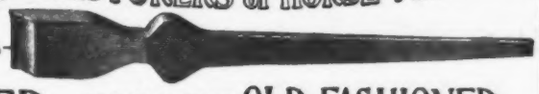
ABRAHAM BUSSING, PREST

4 WARREN ST. N.Y.

MANUFACTURERS of HORSE NAILS.

FORGED HOT

FROM END OF ROD, THUS—



and

COLD POINTED. COPYING THE OLD FASHIONED HAND PROCESS WHICH WAS FORGING BLANKS HOT FROM END OF ROD, AND COLD POINTING BY THE SHOER.

SEE THAT YOUR FARRIER USES NOTHING BUT THE CELEBRATED HOT FORGED & COLD POINTED AUSABLE NAILS IF YOU WANT YOUR HORSES TO HAVE SOUND FEET.

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AUSABLE NAILS speak for themselves.

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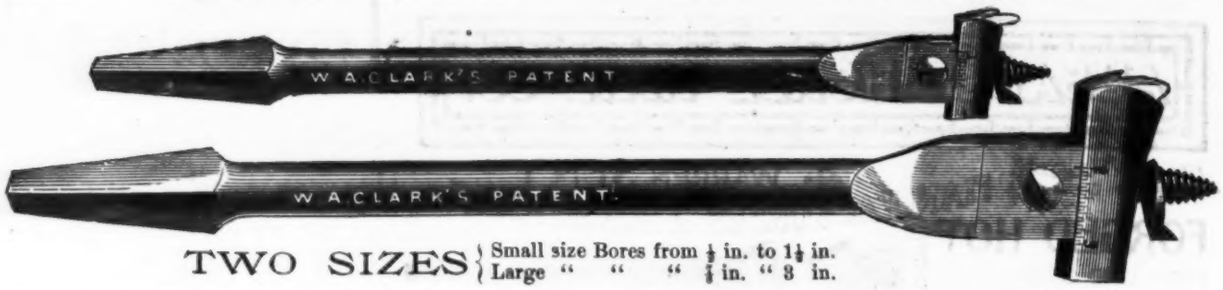
Formerly Made by American Machine Co.

Also Iron and Brass Founders.

The Gem Freezer
The Best in the World.

THE WM. A. CLARK PATENT EXPANSIVE BIT.



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Large " " " ⅝ in. " 3 in.

SPECIAL CUTTERS: No. 5—For Large Bit, Bores from 3 in. to 4 in. No. 6—For Large Bit, Bores from 4 in. to 5 in.

Stock and workmanship superior to all others. Every part interchangeable.
Quality guaranteed. For sale by all Hardware Dealers.

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You take no risk on the Quality
We make only the Best!

Sand Papers IN Reams and Rolls { Flint Paper, Garnet Paper, Emery Paper, Emery Cloth

HAIR FELTING for covering Boilers, Steam and Water Pipe, and lining Refrigerators.

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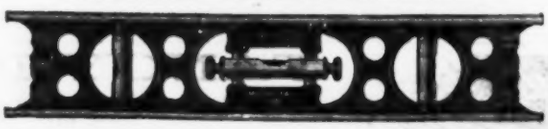
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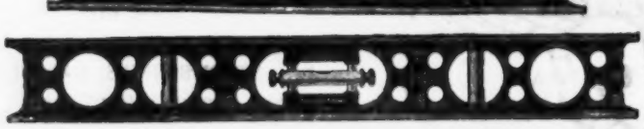
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These Levels are entirely new, both in design and construction. The improvement for which we shall ask letters patent consists in the ingenious method of adjusting the glasses, which is done by loosening one screw and tightening another. The points of these screws strike the case which holds the bubble glass near the end, one being on the upper and the other on the lower side. The stocks are japanned, while all the trimmings are burnished Brass or Nickel-plated.

PRICES.

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" 21.— 4 "	Bench Level	"	6.00
" 22.— 5 "	" "	"	7.20
" 23.— 6 "	Double Plumb Level	"	18.00
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" 25.—18 "	" " "	"	24.00
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Specialties for the Hardware Trade. Cash and Bond Boxes. Bill and Change Boxes.

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Square Lift Wire Lantern, Open

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—MANUFACTURERS OF—

Standard Tubular Lamps and Lanterns.

THE BEST IN THE WORLD.

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MENDS EVERYTHING.

Every Dealer Should Carry it in Stock.

It is the Standard of Excellence and the Strongest Adhesive known.

Liberal advertising and legitimate methods have created a demand for

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which its unequaled merit is continually increasing.

IT CONTAINS NO ACID.

IT SELLS FASTEST

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Order a sample assortment and secure free a handsome Display Stand for your counter.

Beware of Infringements and Accept no Substitutes.

☞ You have no time to waste in fruitless efforts to convince your customers that something else is as good as "Le Page's."

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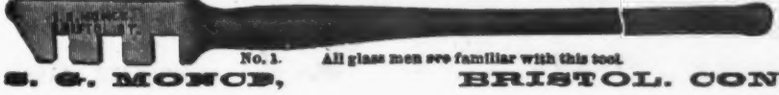
NATIONAL METAL EDGE BOX CO., 621-623 Cherry St., Philadelphia,

For full information.

MONCE'S Novelty Glass Cutters are the standard. No. 17 just out. Send for Illustrations and Price We also make the Compartment Font Interchangeable Lock Stencils that are having such run



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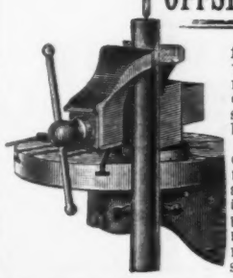
OFFSET JAW VISE.



Specially adapted for drill press work where chucks cannot be used, and equally good for special or regular bench work.

Send for catalogue of full line of the most improved designed and best finished machinists' plumbers', pattern makers and coach makers' vises and small tools.

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No More Leaky Sky Lights

Or Slipping and Breaking of Glass in Green Houses or Farmer's Sash. You can save money and glass by using the

PATENT GLAZIER Twin Points.

THESE POINTS are far superior to the old mode of setting glass, as they will hold each pane in place, preventing the glass from slipping and causing binding and cracking. Each box contains 500 rights and 500 lefts. We also make a tool for driving the points. **Price, 35c a Box. Driver, 15c. A Liberal Discount to the Trade.**

These points are kept by all prominent Hardware, Paint, Oil, Seedsmen, and Florist Supply Stores in the country. If you do not find them, send postal for a free sample, or send 60 cents for 1 package and 1 driver by mail, post paid to any part of the U. S.

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IT PAYS. Nothing about a Hardware Store looks so well as clean shelves and the goods neatly boxed with a fresh sample on the front. Customers are attracted by such a display of care, and notice and buy things that would ordinarily go without notice. The Boxes are inexpensive, save the goods, make a big show for a small investment and help the salesmen. Send to

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Box Straps.

Without waste. Absolutely no waste ends. Two holes punched near each end, and then groups of 3 holes about every 3 inches. Japanned black to prevent rusting. $1.00 per bundle of 300 feet. No razor edges to cut the bands.

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A HANDSOME AND USEFUL TABLE ORNAMENT INDISPENSABLE WHERE FLIES ARE TROUBLESOME. ARMS ARE ADJUSTABLE, AND DISCS REVOLVE RAPIDLY IN ANY POSITION

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DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 120. Fig. 70.

or wherever it is desired to raise a large quantity of water by **hand power.**

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

Send for Circular and Price List.

Fig. 209.

Fig. 381

MYERS REVERSIBLE STEEL AND WOOD TRACK HAY CARRIERS

TRADE MARK. A complete outfit. Easy to put up, always reliable and fully warranted to meet the wants of any farmer.

MYERS' FORCE AND LIFT PUMPS

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Simple, durable, powerful, easy to operate never affected by frost. **Patent GLASS VALVE**, will never corrode. Ask your dealer for our goods. Write for catalogue.

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SPECIAL FEATURES OF OUR LEVEL.

1. The greatest strength and durability attainable. 2. Entire glass exposed to view. Most convenient level made. 3. The only level really adapted to the rough use of masons. 4. Absolutely accurate and finely finished. Send for Circulars and Price-lists.

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WITH OR WITHOUT AGITATOR.

"EUREKA" NOZZLES, "VERMOREL" NOZZLES, ETC.

THE GREATEST VARIETY.

DISCOUNTS ON APPLICATION.

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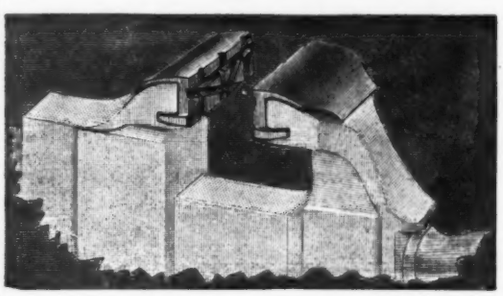

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Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

3½ inch,	.....per pair,	40 cents.
4 "	..... " "	50 "
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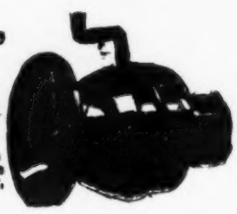
Complete Outfits of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave., near Knickerbocker, Brooklyn, N. Y.



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For destroying lice, worms and fungus on plants, vines and trees. They are needed for destroying Hop Lice, Cotton Worms, Orange Scale, Tobacco Worms, Codling Moth, &c., &c. We make a speciality of spraying outfits and guarantee that ours are

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HUDSON'S GARDEN HOSE MENDER

SO SIMPLE A CHILD CAN USE IT.

Made in 3 sizes, for ⅛ in., ¾ in. and 1 in. hose.

PUT UP IN BOXES FOR FAMILY USE.

Each box contains.

1 Pair PLYERS.
20 BANDS.
6 TUBES.

Sells readily at 75 cents. LIBERAL discount to DEALERS. Send for full description.

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Manufacturer,

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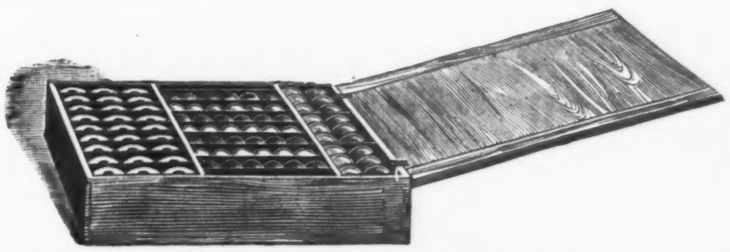
STRONGEST. NEATEST.

WARNER'S BURGLAR PROOF LOCKS.

LIGHTEST. SAFEST.



SEND for a sample of our solid braided cotton sash cord. It is more flexible and as durable as any sash cord made.

We would also call your attention to our extensive assortment of spool wire, which is the neatest box on the market and is indispensable to the retailer. **Send for Catalogue.**

TATE & CO., Malden, Mass.,

Manufacturers of Braided Wire Picture Cord, Twisted Galvanized Clothes Line, Sash Cord, Spool Wire, etc.

A NEW CHAIN PUMP

KEGLER'S PATENT

Galvanized Iron Tubing

FOR CHAIN PUMP,

Is guaranteed to be

THE BEST.

IT is made of best quality Galvanized Iron, which will not rust nor accumulate filth.

IT only weighs one-half pound to the foot, wet or dry, while wood tubing saturated with water weighs six pounds or more per foot.

IT will last longer than wood tubing.

IT will not freeze in any climate.

IT can be attached to any make of curb.

We also manufacture a Galvanized (all) Iron Curb. Address

KEGLER, WEINSCHENK & AHLERS,
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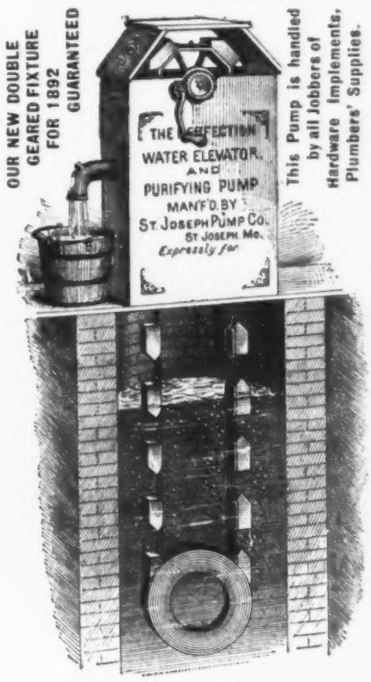
OR **A. F. SHAPLEIGH HDW. CO., St. Louis.**
Agents for Southern Territory.



$1.000 for any Bucket Pump that will equal the "Perfection" in neatness, workmanship or durability. It is the only Bucket Pump on earth, where the chain or buckets are made of strictly one piece of **BLACK OPEN HEARTH STEEL AND FREE FROM SOLDERING,** being folded by double lap seams and the entire product galvanized after construction.

THE CELEBRATED

"PERFECTION"

Water Elevator and Purifying Pump.

The storage of water in cisterns and open wells is the method largely adopted throughout this country for Drinking, Cooking and Bathing purposes. We have had an abundance of rainfall, wells and cisterns are full, the water contained therein becomes FOUL and STAGNATED during the months of July, August and September. If you will place a "PERFECTION" PUMP on well or cistern we GUARANTEE the water to become and remain as PURE as a MOUNTAIN STREAM. It is the simplest structure for raising water on the Continent—guaranteed not to freeze.

The Perfection

Having no Valves, Tubes or Plungers to get out of order, no Wood Tubing to Pollute the water, no attachment below platform, never has to be primed, packed or thawed out; easiest pump operated. Over 140,000 in daily use.

We are now striping and decorating the "Perfection" in the finest manner possible.

Agents wanted in every town. Dealers, write your jobbers for quotations. Be sure you get "The Perfection," take no other. For full information, circulars, catalogues, etc., address the manufacturers,

St. Joseph Pump Co., St. Joseph Mo., U.S.A.

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Angular Borer.

SOLE MANUFACTURERS OF

Backus Patent Bit Braces,

RATCHET BRACES, ANGULAR BORERS,

Adjustable Socket Wrenches and Breast Drills.

Write for 1892 Catalogue and Price List.

Adjustable Socket Wrench.

BACKUS MANUFACTURING CO.

WILLIAMSPORT, PA.

THE BICYCLE STEP LADDER.

The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made.

Ladders are not *Suspended*, but *Supported* from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit.

Send for illustrated catalogue and prices to

The Bicycle Step Ladder Co.,

184 and 186 Clark St., Chicago, Ill.

SETTING BLOCK.

E. C. ATKINS & CO.,

INDIANAPOLIS, IND.,

ATKIN'S PAT. EXCELSIOR SAW TOOLS

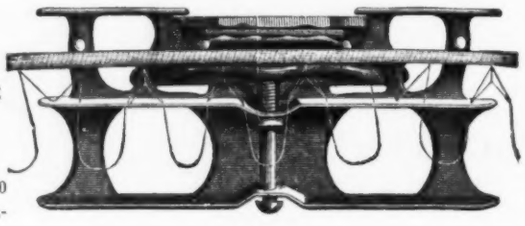
For Use in Fitting up Cross-Cut Saws.

Comprising a Combined Side File, Jointer and Tooth Gauge, by the aid of which Cross-Cut Saws may be kept in much better order than is possible without them. The value of the Setting Block will be readily estimated, as it is well known that saws having a proper temper cannot be safely set with a wrench, or "Spring Sets" made for the purpose; while with our Setting Block saws of very high temper and of the finest steel can be easily set.

TOOTH-GAUGE.

SIDE FILE, RAKER, TOOTH-GAUGE AND JOINTER COMBINED.

Price to the trade, $6.00 per Dozen. Write for Catalogue.



JOINTER.

THE NATIONAL SAW CO., 96 & 98 READE ST., NEW YORK.

This saw is three gauges thinner on back than cutting edge, ground a true taper, making it the stiffest and easiest cutting one man saw produced.

We can also furnish the above with Diamond or Favorite Tooth. Packed six saws in dove-tailed wood case, with supplementary handles. No charge for cases. All saws bearing our name are fully warranted. We solicit your inquiries.

YOUR STOCK SHOULD INCLUDE

THE SIMONDS CRESCENT-GROUND CROSS-CUT SAWS.

SIMONDS MFG. CO., Fitchburg, Mass. Chicago, Ill.

SIMONDS SAW CO., San Francisco, Cal. Portland, Ore.

Advise where you saw this invitation. Send for the Simonds Sor-cerer; it will amuse you; Sent gratis.

J. M. KING & CO.,

WATERFORD. N. Y.,

Manufacturers of

BUTTON'S

Pat. Wire Cutter

AND PLIER COMBINED.

Specially Adapted for Use on Wire Fence.

Also Manufacturerers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCREW TAPS PIPE TAPS and REAMERS.

Price List on Application.

Established by DANIEL B. KING, 1829.

Yacht AND Boat Hardware.

L. W. FERDINAND & CO.

BOSTON, MASS.

HENRY DISSTON & SONS

(INCORPORATED),

KEYSTONE

Saw, Tool, Steel and File Works,

PHILADELPHIA, PA.

All goods bearing our brand are fully warranted.

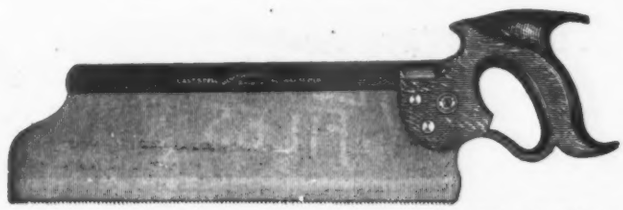
Solid Shank Cast-Steel Garden Trowels.

No 4 Double Edge Pruning Saw.

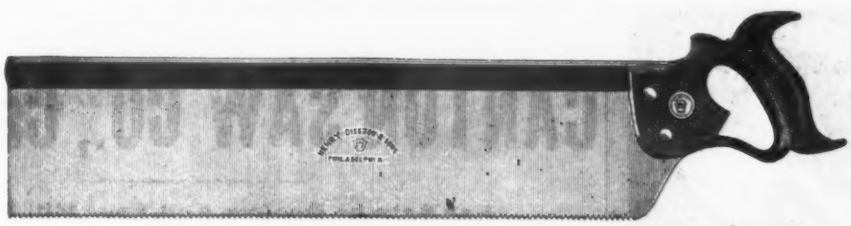
"California" Pruning Saw.

No. 7 Cast-Steel Pruning Saw.

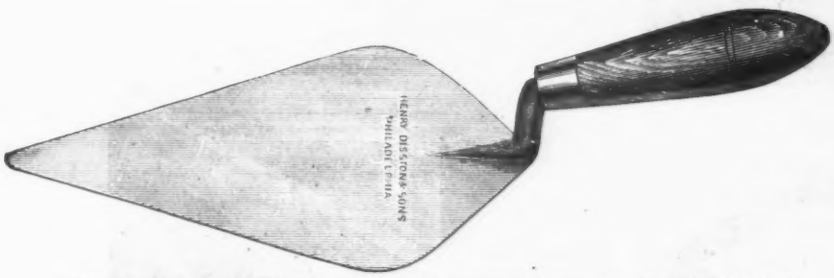
Little Giant" Pruning Hook and Saw. The knife and saw are made of the best cast steel.



No. 9 Improved Back Saw. Apple Handle with Thumb Piece.



Mitre Box Saw No. 4. Apple Handle, Steel Back.



Disston's London Pattern Brick Layers' Trowel. Best Cast Steel, finely tempered and ground.

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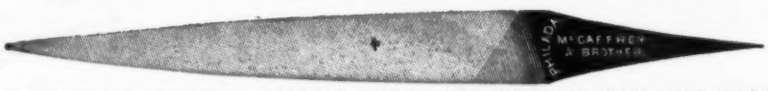

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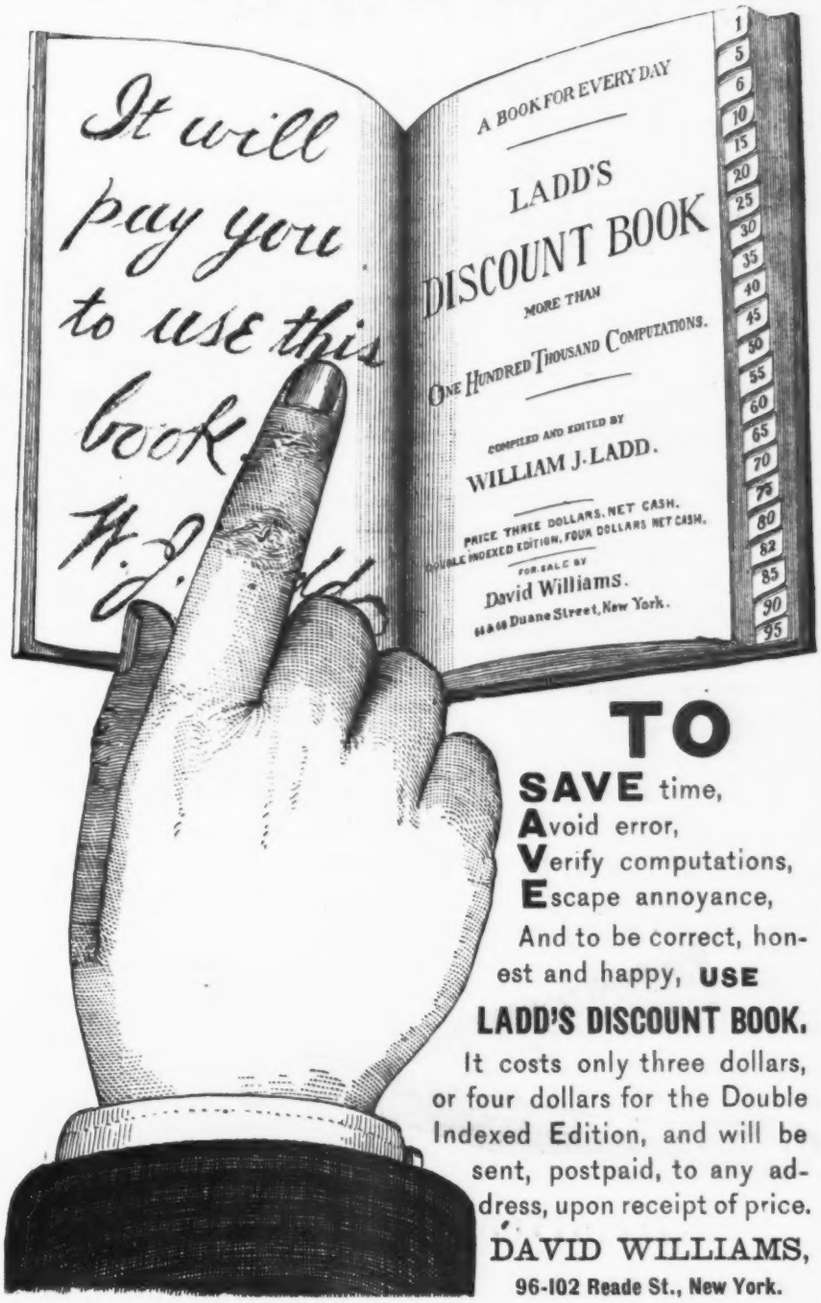

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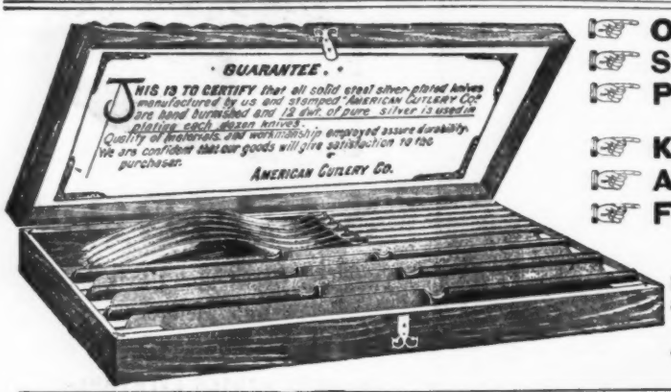

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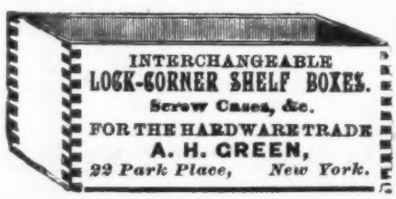

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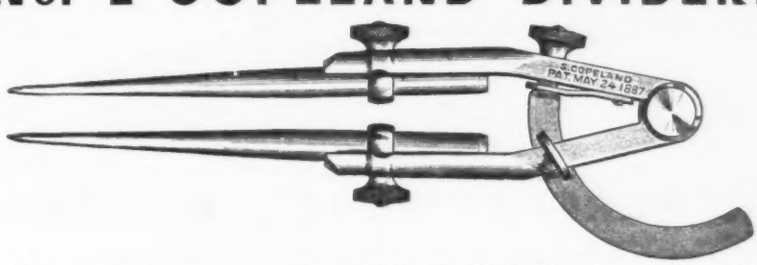

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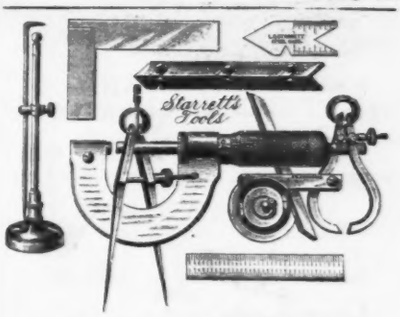

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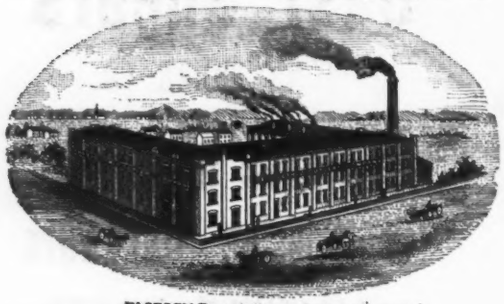

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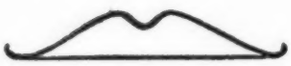

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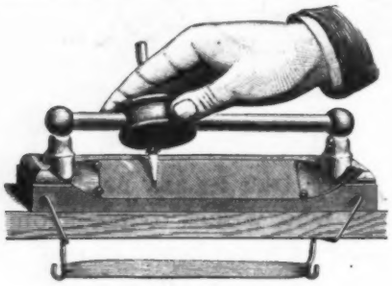

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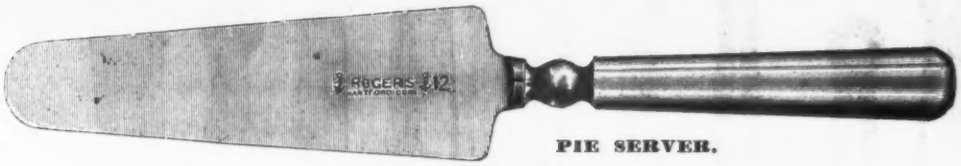

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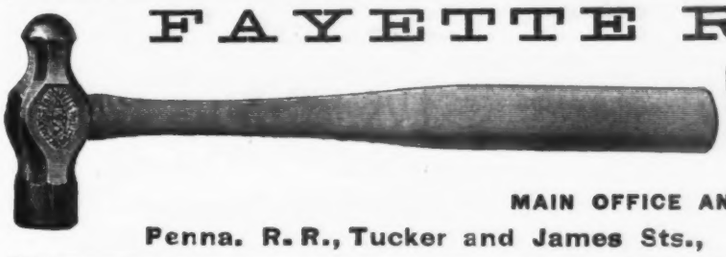

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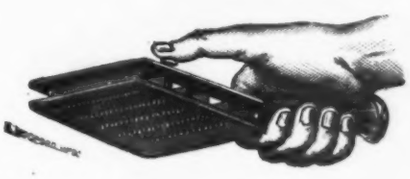

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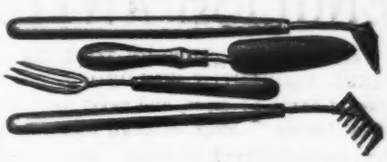

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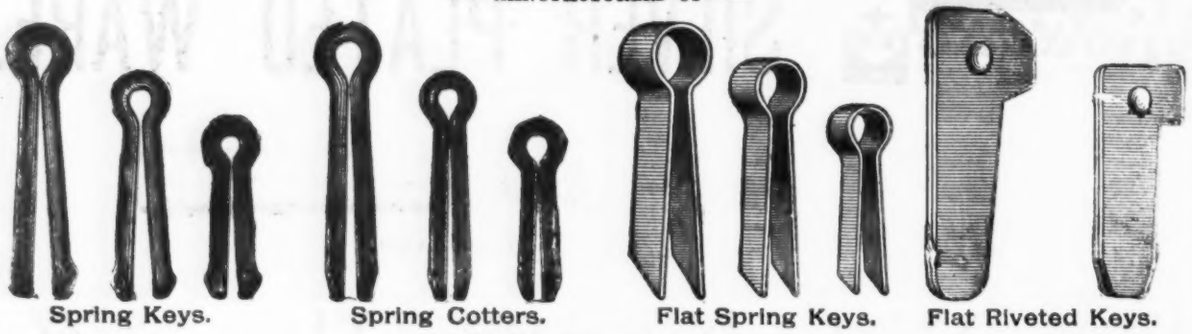

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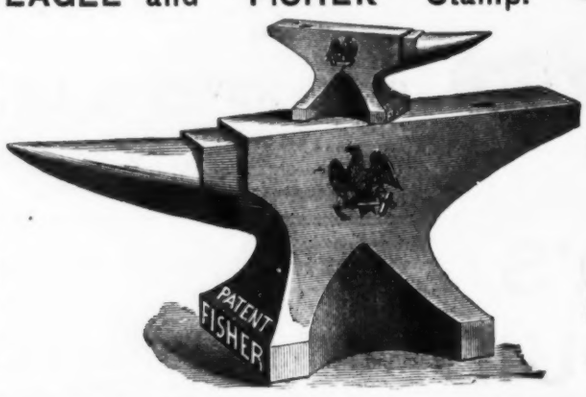

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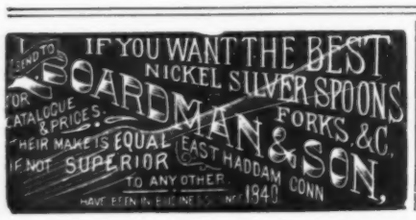

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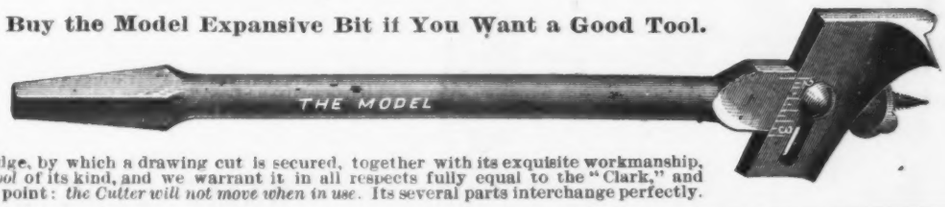

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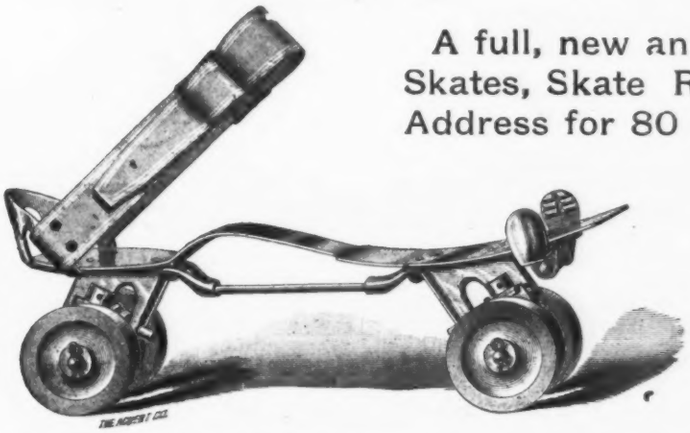

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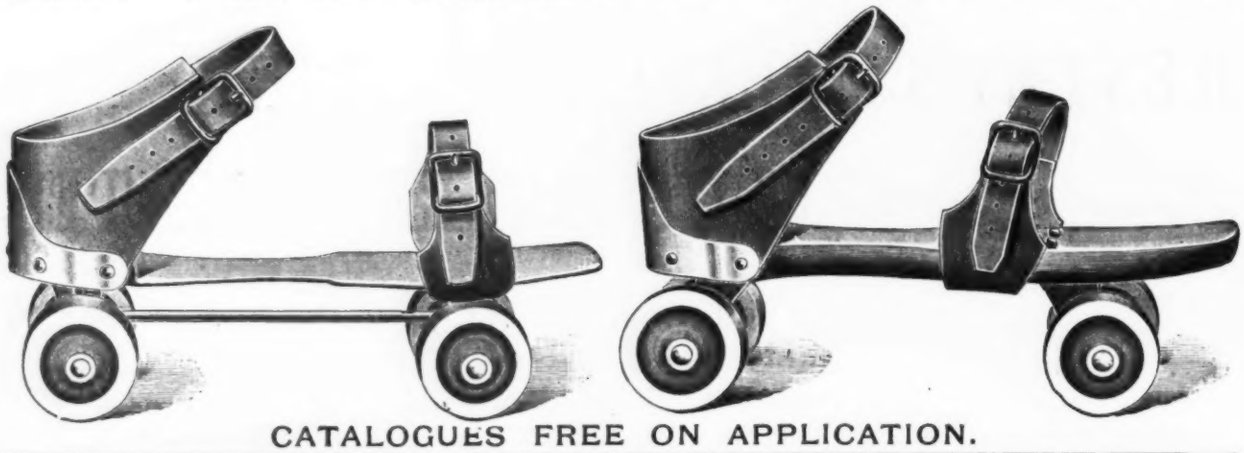

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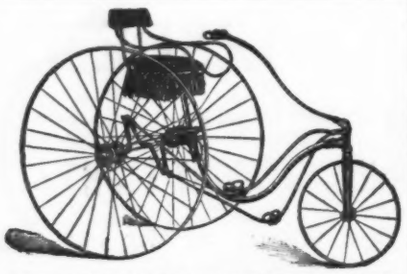

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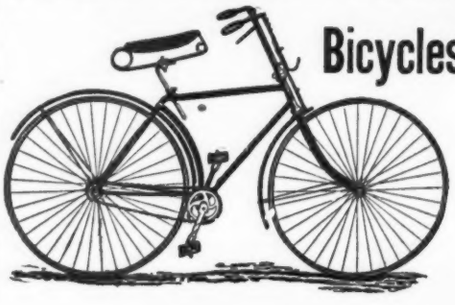

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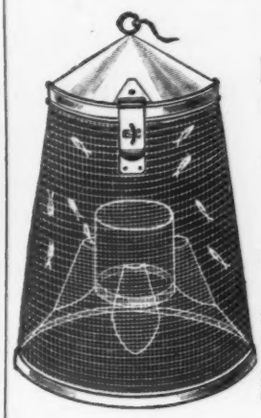

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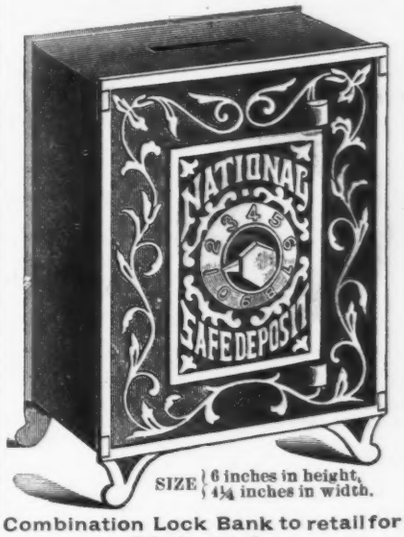

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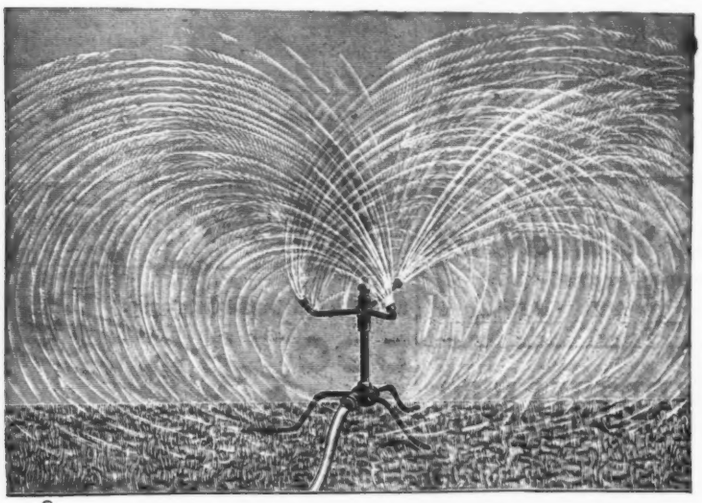

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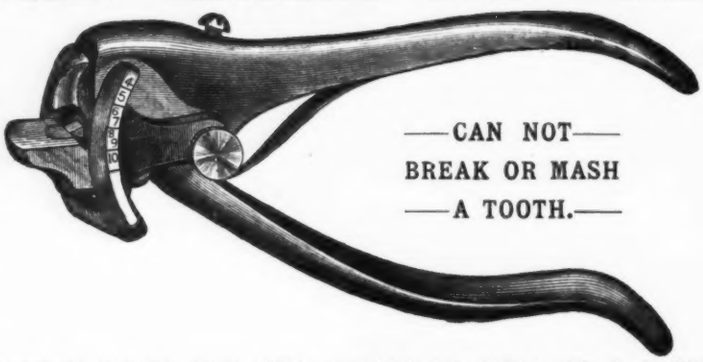

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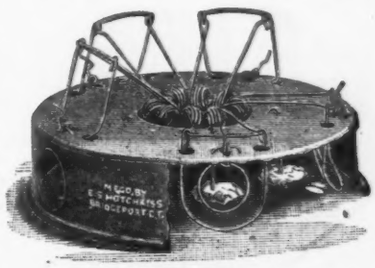

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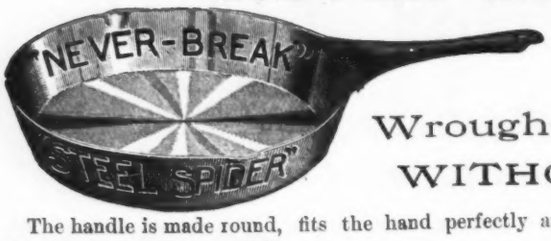

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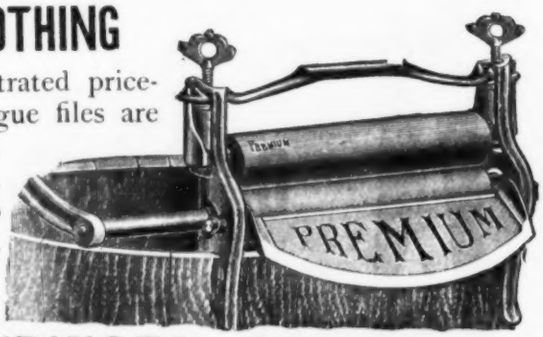

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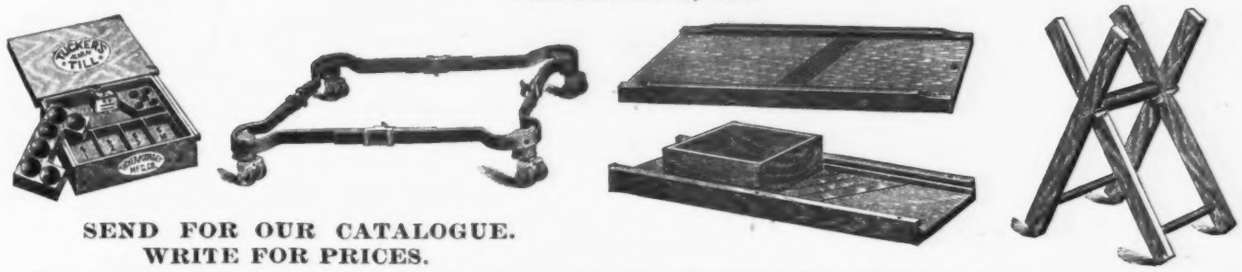

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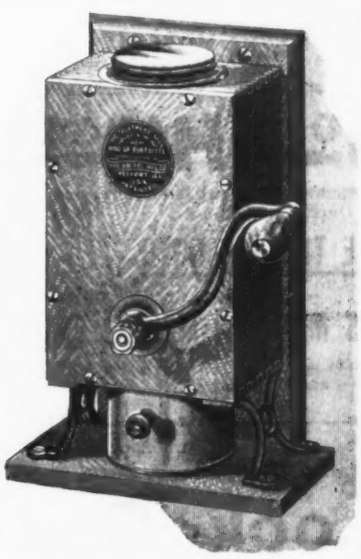

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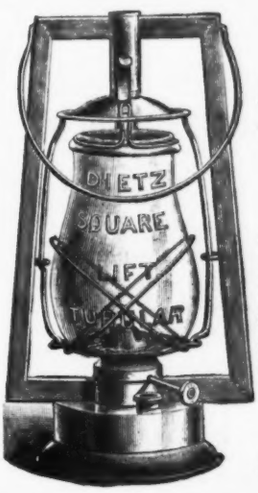

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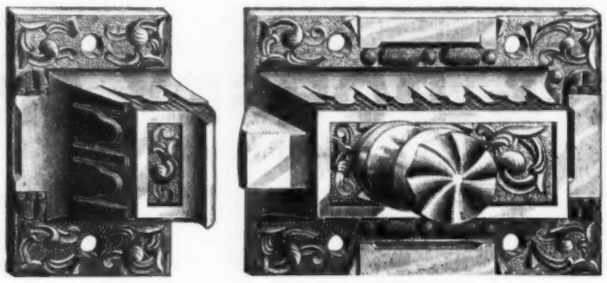

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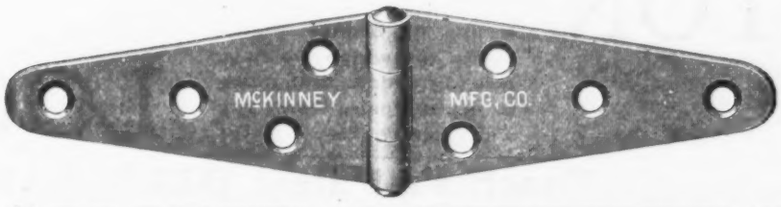

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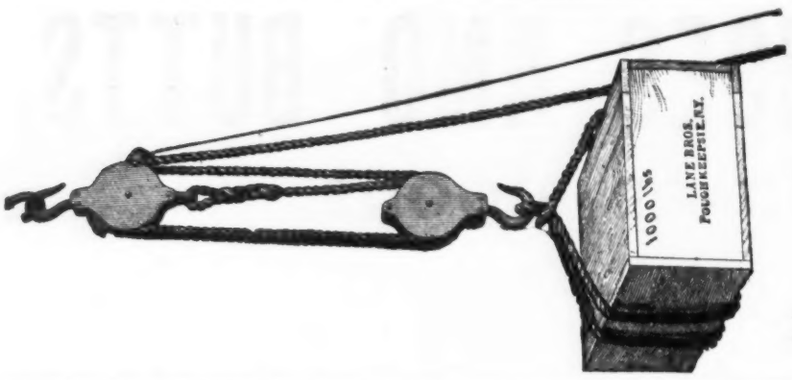

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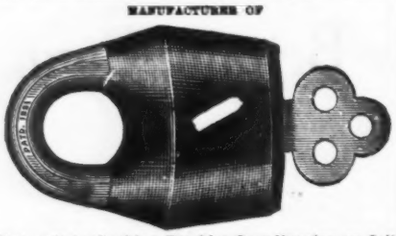

Patent Inter-Locking Tumbler Scandinavian or Jail **PAD LOCKS,** in 56 grades and sizes. Key and **Self-Locking.** Brass, Bronze and Malleable Iron. Red, Black, Bright and Bright Brown finish. We make no Cast Iron goods. High class goods at same price as the inferior imitations. All fully illustrated and described in our new catalogue, furnished free.

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DIAMOND LOCK-WORKS,

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Sole Mfrs. of

Self-Locking Scandinavian Padlocks.

The best, most durable, and most convenient Padlocks made; of No. 427

Unpickable Flat Bronze Spring Padlock,

Most secure, and finely finished Padlock made, and of Lancaster Drive Sash-Pulleys, best and cheapest Sash-Pulleys on the market.

HARDWARE DEALERS

CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

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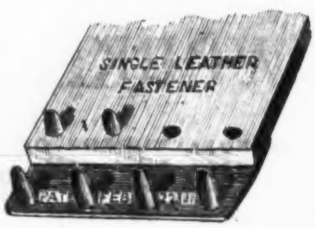
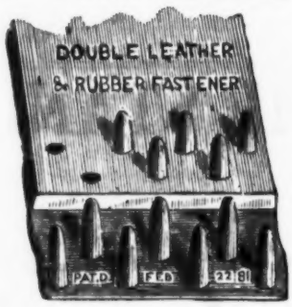
65 Elizabeth Street,

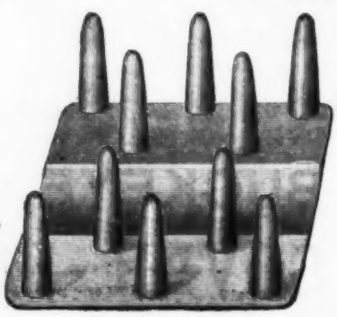
Write for Prices. **NEW YORK.**

Thacher's Patent BELT FASTENERS.





Fastens any width or ply of Belting.



Can be used on any make of Belting.

Manufactured by

THE CLAFLEN MANUFACTURING CO., Cleveland, O.

Office, 71 and 73 Ontario St. Factory, 30, 32, 34 Noble St.

W. H. DIFFENBACHER, 154 Lake Street, Chicago, Agent.

PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes; ¼ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ⅜ and ½ inch Padlocks, opened with a common pin, in brass and nickel; for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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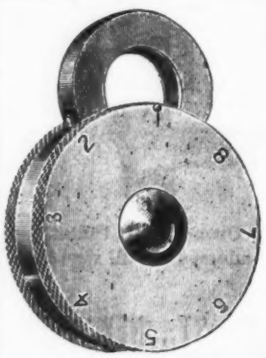

IF COMBINATION LOCKS

ARE NECESSARY ON YOUR

SAFES AND VAULTS,

WHY NOT PROTECT YOUR

HOUSE DOORS

and all other places containing valuables with them? We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

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Showing one-half set of hangers attached to door.

STEEL RAIL.

The Only Bracing Bracket Made.

PRICE-LIST.

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No. 5, to run 6 feet, 3½ in. wheel,	$10.00
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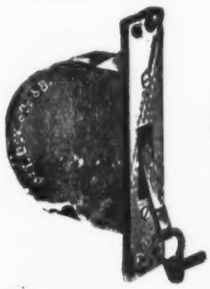
No. 7, to run 15 feet, 5½ in. wheel,	22.00
RAIL, per foot	6½ cents.



The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

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TRUNK & CASE LOCKS

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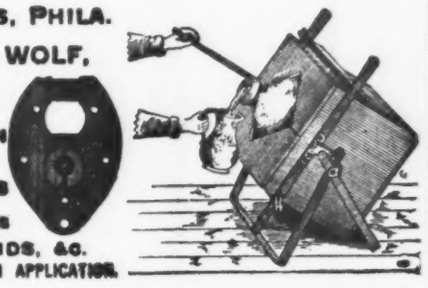

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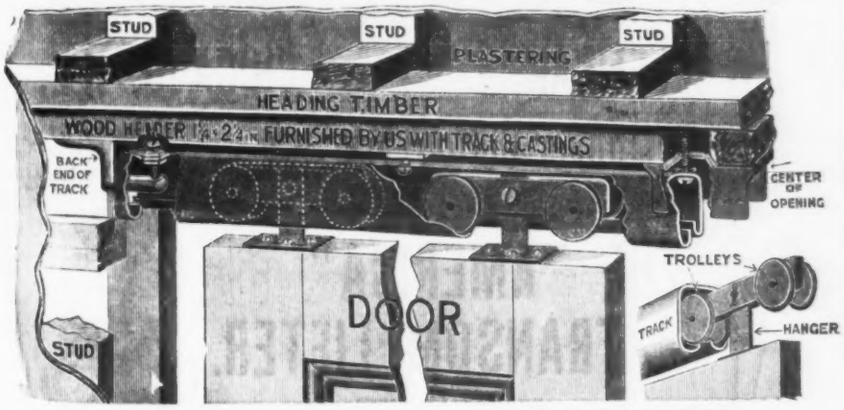

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The Coburn Hangers for Parlor, Barn or Fire Doors. They are the only covered adjustable track in the world. No plaster or chip can block this track. The bearings are self lubricating and never require oiling. The noise is reduced to a minimum. Can be hung in one-third the time of all other hangers. Endorsed by the leading architects and builders in the country as the best in the world

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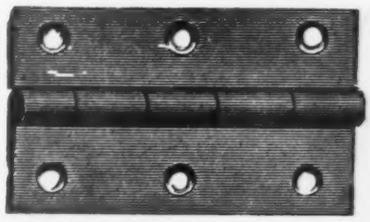

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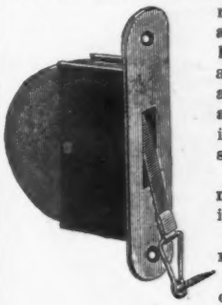
A Pronounced Success

BY LEADING ARCHITECTS.

This is not a Complicated Combination of Steel Ribbon, Pulleys, Attachments and Weights. Our Balance costs the consumer half the money and lasts twice as long. Requires no Box Frames. Can be applied to old as well as new windows, exactly counterbalancing the weight of the sash.



Steel Frame, Aluminum Tape. Practically indestructible.

Every Balance warranted.

Ask for Pullman and don't confuse ours with imitations.

THE PULLMAN SASH BALANCE CO., Rochester, N. Y.

Perfection Sash Balance

Trade-Mark.

The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

Each balance is fully warranted for ten years.

PERFECTION SASH BALANCE CO.,

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Pat. Dec. 15, 85.

"CONROY"

Refrigerator Door Fasteners

Have rapidly supplanted all others

Refrigerator Trimmings.

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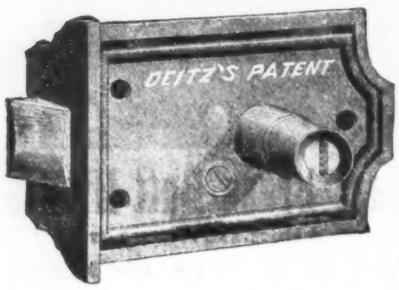

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Factory, BROOKLYN, E. D., N. Y.

IDEAL SASH PULLEY.

A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

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For Every Purpose.
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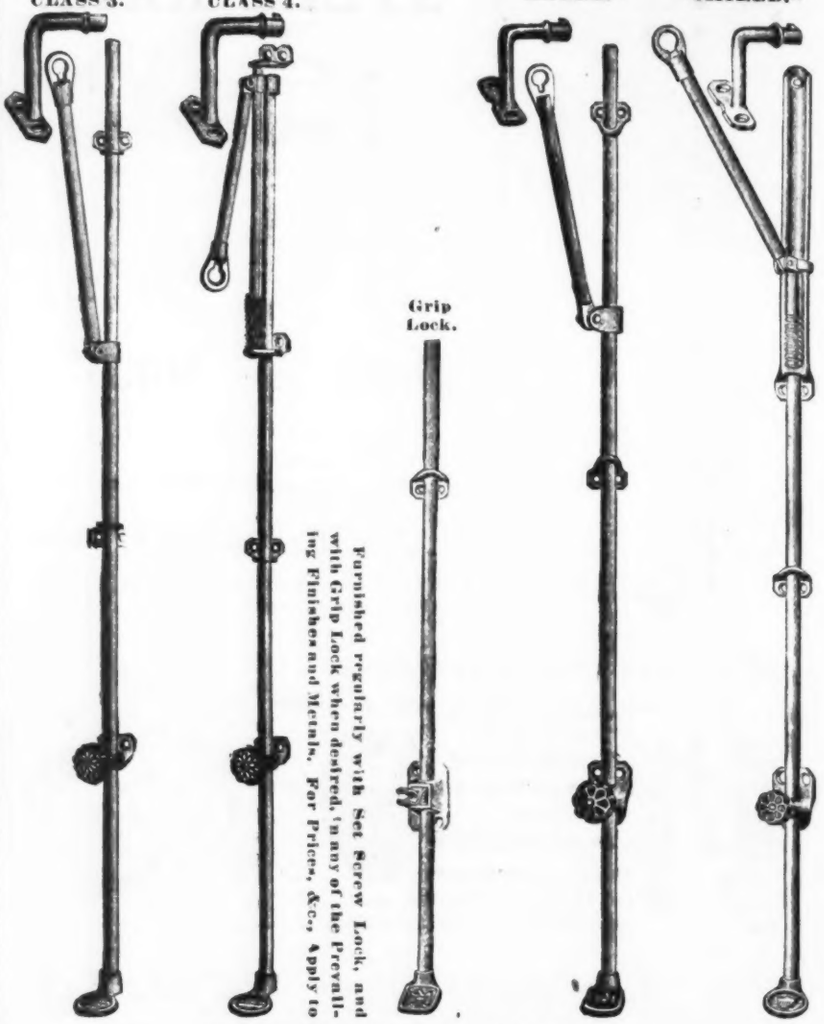
Old Reliable.



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Munger-Colton Mfg. Co.,

Manufacturers of

THE "AMERICA" TRANSOM LIFTER.

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The Thumb Screw Standard and Guides are constructed with **Rotatable Bases.**

These **Revolving** or **Adjustable** Bases enable the Lifter to be secured to any style of moulding or narrow beading (see cut on right) and to either,

RIGHT OR LEFT HAND SIDE OF DOOR.

Saves Merchant carrying double stocks.

Send for Illustrated Circular of our full line of Lifters.

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General Agents,
142 Lake St., Chicago.

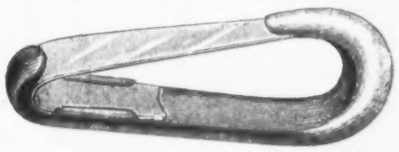
Shows possible position of rotatable base.

COVERT'S "TRIUMPH" SNAP

Spring used in TRIUMPH SNAP

Takes the lead. Every feature a triumph. No dirt or ice can clog it. It is the most convenient, most durable and the handsomest. Made in all sizes, both loop eye and round eye; also swivel eye and open eye, and double for bit snap, &c. We are Headquarters for Web, Rope and Leather Halters, Horse and Cattle Ties.

TRIUMPH SNAP.



As used for attaching Bit to Bridle or Halter. Has no equal, and the lowest in price.

WE ARE HEADQUARTERS FOR

WAGON JACKS.

Our "Daisy" is the lowest in price and the best Wood Jack. Our "Victor" is the lowest in price and the best Iron Jack on the market.

"Daisy."
Capacity, 1200 lbs.

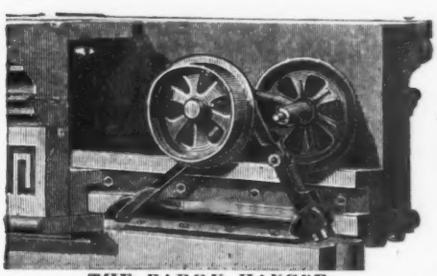
DANDY HAME STRAPS.

"Victor."
Capacity, 1600 lbs.

Send for catalogue illustrating our specialties in Saddlery, Coach and General Hardware.

THE E. COVERT MFG. CO.,

Farmer Village, N. Y., U. S. A.



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CENTRAL CITY BOLT CO.,

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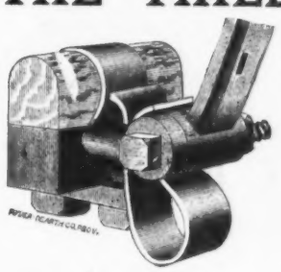
MANUFACTURERS OF

Carriage Bolts and

The Barry Parlor Door Hanger

ADJUSTS ITSELF TO UNEVEN TRACK.

THE THILL COUPLING SPRING



MADE BY THE

SABIN MACHINE COMPANY, Montpelier, Vt.

Is unquestionably the BEST METAL SPRING made for the purpose of preventing the rattling of the Thills.

It is adapted to any coupling where rubbers are used. It does its work perfectly, and is so formed as not to wear the iron of the coupling, as it presents a flat, smooth surface to the bearing, and yet holds the shaft perfectly in place, and prevents all rattling.

It Outlasts many sets of rubbers and costs but a trifle more. It is easily adjusted. Made in four sizes, ⅞, 1, 1⅛ and 1¼ inch. Packed one dozen pairs in a box.

Send for Sample Dozen or Larger Quantities to

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THE QUEEN ANNE SCREEN CO., of Burlington, Vt.

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Improved Adjustable Window Screens.

THE QUEEN ANNE. With box panels; the only screen made and finished alike on both sides.
THE EUREKA. The best cheap extension screen on the market.
SCREEN DOORS. Finished all ready to hang. Sticks, Corners, Improved Frames, &c.
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Cotton and Bale Hooks.

Patented Feb. 13, 1877, a new combination of Hooks.

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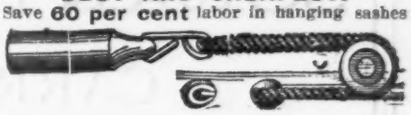
READY-MADE SASH CORDS.

BEST AND CHEAPEST.

Save 60 per cent labor in hanging sashes



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Any one can put them on or off or put in new calks. Price, $3.00 set of 4, express paid. For single sets send shoe outlines. Worth more than cost for emergencies. Agents wanted. Circulars free.

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FROST'S ANTI-RATTLER

Pat. Jan. 20, 1880.

Cut One-half Size.

Sample pair sent to any hardware or saddlery firm by addressing

The Frost Thill Spring Co.,

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Manufacturers of

Hardware Specialties, Can Openers, Pocket Wrenches, Mincing Knives, Clothes Line Pulleys, &c.

Send for Catalogue.

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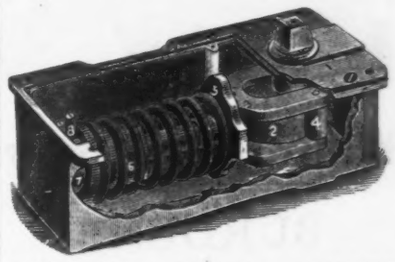

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FOR SWING DOORS.

Applied in floor under door. They close the door gently, without noise or violence and stop it at once at the centre. Doors cannot sag, springs do not break or set.

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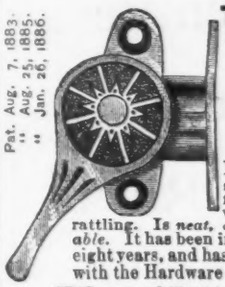
Illustrated Price-List on Application.



Pat. Aug. 7, 1883.
" Aug. 25, 1885.
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The Champion SIDE Sash Lock

Has by its *unequalled merits* gained the public favor. It is a safe ventilator and prevents rattling. Is *neat, cheap, simple and durable.* It has been in *extensive use* for over eight years, and has become a *staple article* with the Hardware trade.

☞ *Beware of Worthless Imitations.* ☜

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Bicycle Bells.

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Manufacturers of

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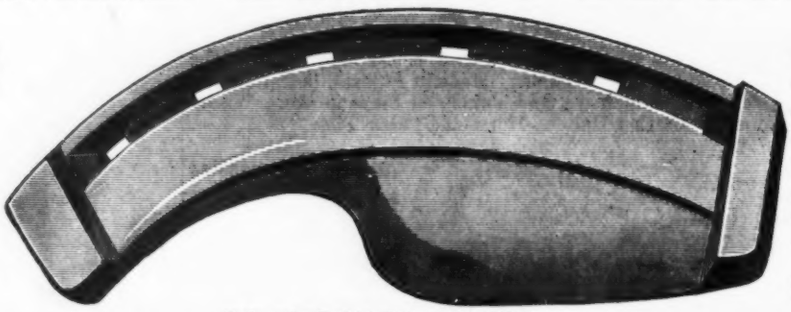
CARRIAGE HARDWARE AND SPECIAL DROP FORGINGS.

FORGED OX SHOES.



Made under Deeble's Patent, Aug. 9, 1887.

Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

It is Just Right.

Mount Carmel Steel Toe Calk Ox Shoes.

The Best and Cheapest in the World.

Blunt Calk. Seven Sizes.

Warranted to outwear any shoe made.

WRITE FOR PRICES.

Sharp Calk. Six Sizes.

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BURDEN'S

HORSE SHOES.

"Burden Best" Iron. Boiler Rivets.

THE BURDEN IRON CO.

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THE BOSS

TRADE MARK

HORSE AND MULE SHOES.

Superior Quality, Shape and Finish.

BRYDEN HORSE SHOE CO.,

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SPECIALTIES:—X L Steel Shoes, Toe Weight Shoes and Goodenough Shoes.

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ALSO SPECIAL FORGINGS.

Estimates cheerfully given. nd for Catalogue.

THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and **YOU** will say they excel all others.

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Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blank Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

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MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE,

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.

All **Tags** and **Labels** on **Covert Goods** bear the above **Trade-Mark,** and are sold by all Leading Jobbers in General and Saddlery Hardware at Manufacturers' Prices.

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Manufactured by the NATIONAL HORSE NAIL CO.,

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All Sizes. All Patterns. All Warranted. Sold Everywhere.

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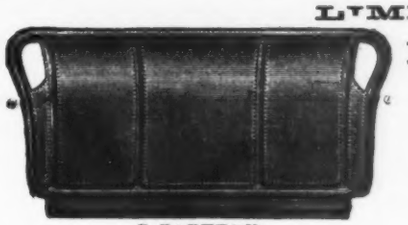
LIMITED, Manufacturers of



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FINE QUALITY

DASHES

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Manufacturer of PATENT STEEL (Blunt and Sharp) TOE-CALKS.

—ALSO—

BURKE'S IMPROVED HORSESHOERS' FOOT VICE.

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Die for Welding Sharp Calks.

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HORSE SHOES.

PHOENIX HORSE SHOE CO.

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AXLEINE

is a fine quality of Axle Grease, put up in square tin boxes containing one pound; beautifully decorated in assorted colors; designed especially for the Hardware Trade. Showy and attractive shelf goods.

Send for sample and prices.

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PATENTED ARTICLES
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Malleable Iron.
Hammer's Mall. Iron Hand Lamps.

SCREW, KEROSENE SIZE.

Hammer's Adjustable Clamps.
Hammer's Malleable Iron Oilers, 3 Sizes.
Hammer's M. I. Hanging Lamps.
NEW pattern Heavy Screw Clamp strongest in the Market.
For sale by all the principal Hardware Deals.
Send for Price List.
MALLEABLE IRON CASTINGS
Of superior quality, and Hardware Specialties in Malleable Iron made to order.
HAMMER & CO.,
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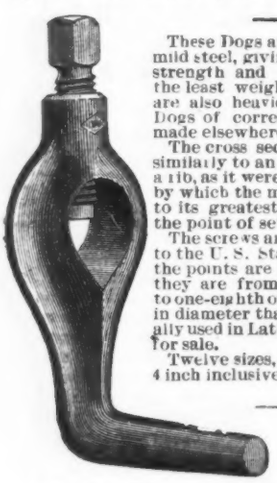
Pat. Jan. 5, '92.
An appliance to be attached to a tackle block for holding the load at any desired height. Grips the rope but does not injure it. Applicable to any style of block and easily attached. The lightest and cheapest on the market and perfectly sure. If your hardware dealer does not keep it send to us and we will deliver it.
Blocks furnished equipped with grips if desired.
Dean-Whiting Elevator Co.,
140 Union St.,
WORCESTER, MASS.

DROP-FORCED
STEEL LATHE DOGS.



These Dogs are forged from mild steel, giving the greatest strength and toughness for the least weight, while they are also heavier than other Dogs of corresponding sizes made elsewhere.
The cross section is shaped similarly to an ogee, forming a rib, as it were, on the back, by which the metal is utilized to its greatest advantage at the point of severest strain.
The screws are made of steel to the U. S. Standard Gauge; the points are hardened, and they are from one-sixteenth to one-eighth of an inch larger in diameter than those generally used in Lathe Dogs offered for sale.
Twelve sizes, from ⅜ inch to 4 inch inclusive.

J. H. WILLIAMS & CO.
STANDARD AND SPECIAL DROP-FORGINGS,
—MAKERS OF—
Brock's Patent Chain Pipe Wrench,
9 Richards St., near Hamilton Ferry,
BROOKLYN, N. Y.

WHY USE WOODEN OR HEAVY STEEL BLOCKS
WHEN THE STEEL AND IRON
TACKLE BLOCKS

—MADE BY—
The Cleveland Block Co.
CLEVELAND, OHIO, U. S. A.,
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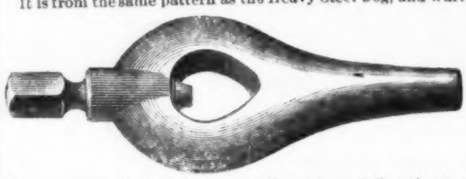

No.	Inch.	Price.	No.	Inch.	Price.
1	⅜	$0 60	11	2½	$1 45
2	⅞	70	12	3	1 60
3	1	70	13	3½	1 80
4	1⅛	80	14	4	2 10
5	1¼	80	15	4½	2 75
6	1⅜	95	16	5	3 25
7	1½	95	17	5½	4 00
8	1¾	1 10	18	6	5 00
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10	2¼	1 35	20	8	7 00

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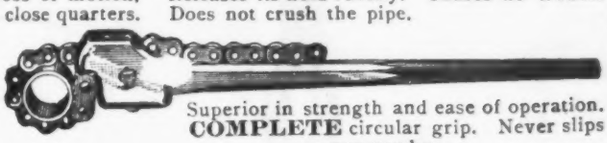

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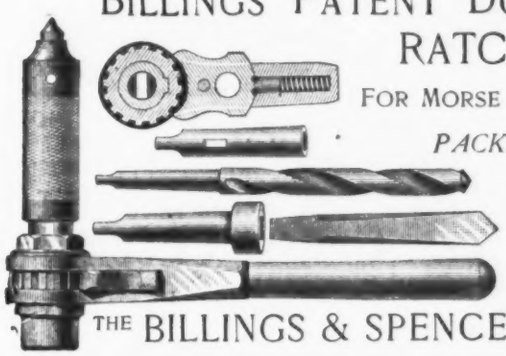

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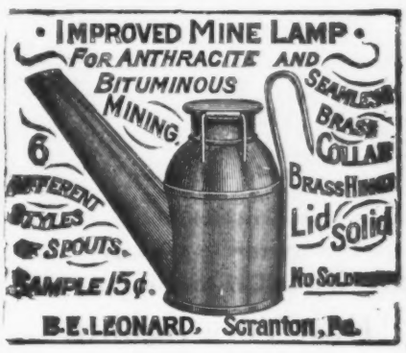

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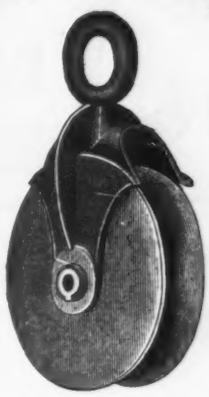

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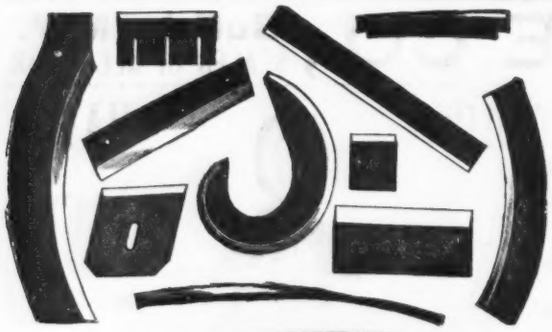

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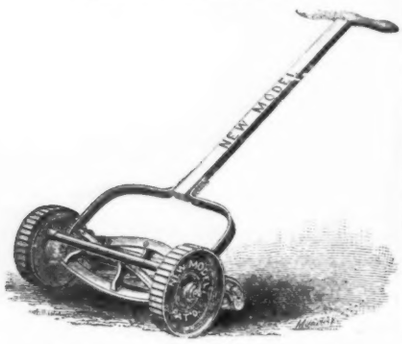

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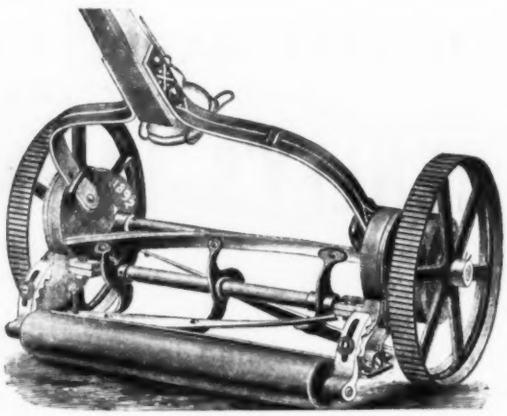

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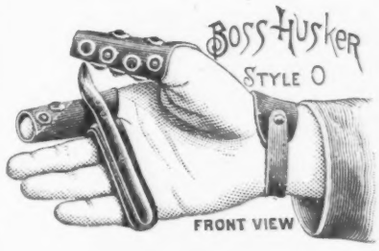

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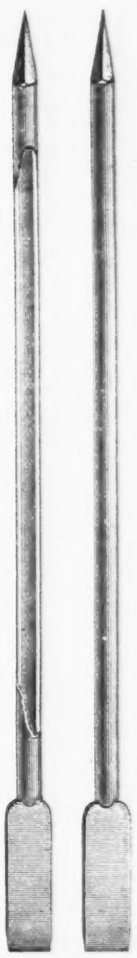

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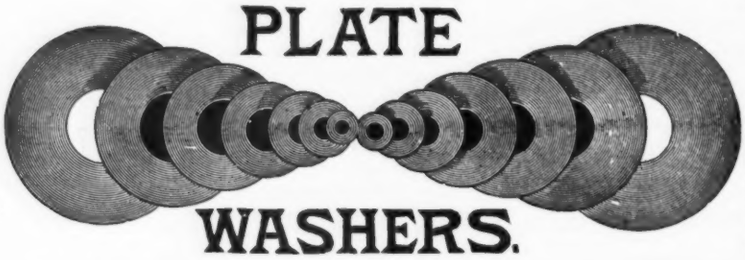

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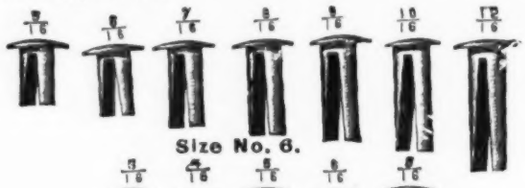

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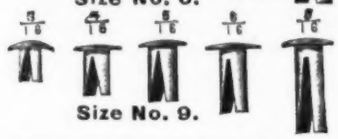

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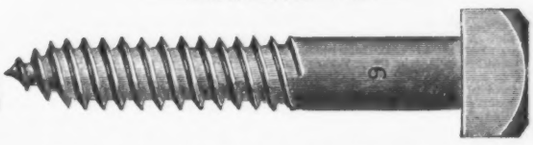

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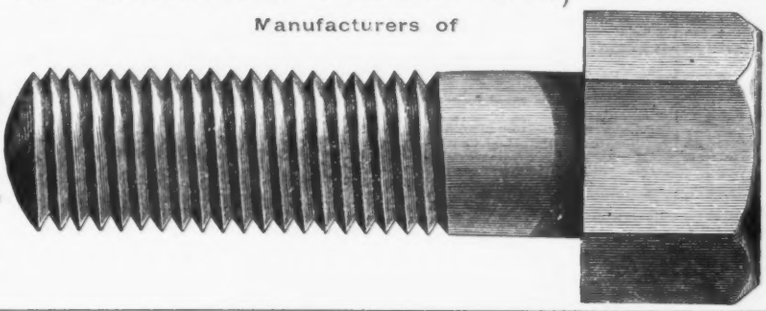

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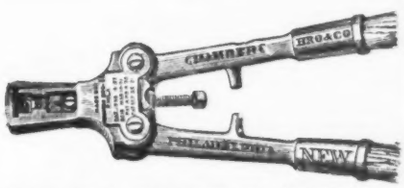

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Waldo & Stout, Bridgeport, Conn.

Analytical Chemists.
Britton, J. Blodgett, Philadelphia, Pa.
Hunt, Robt. W. & Co., Chicago, Ill.
Moore, Dr. Gideon E., 69 Liberty, N.Y.
Westessen, Jos., Philadelphia, Pa.

Anti-Friction Metals.
Phillips, F. R., Philadelphia, Pa.
Raymond Lead Co., Chicago, Ill.
Reeves, Paul S., Philadelphia.

Anvils. *Makers of.*
Eagle Anvil Works, Trenton, N. J.

Arms and Ammunition.
Bartley & Graham, 313 & 315 Broadway, New York.
Hulbert Bros. & Co., 26 W. 23d St.,
Union Metallic Cartridge Co., 313 & 315 Broadway, N. Y.

Auctioneers.
Haydock & Bissell, N. Y.

Axle Grease.
Lovell, Tracy & Co., Hartford, Conn.

Axles, Springs, &c., *Manuf'rs of.*
Gautier Steel Dept. of Cambria Iron Co., Johnstown, Pa.
Wurster, F. W., Brooklyn, N. Y.

Babbitt Metal.
Crown Smelting Co., Chester, Pa.
Fastwood Wire Mfg Co., Bellville, N.J.
Phillips, F. R., Philadelphia, Pa.
Raymond Lead Co., Chicago, Ill.
Reeves, Paul S., Philadelphia, Pa.

Bakers and Roasters.
Bronson Supply Co., Cleveland, O.

Band Saws.
Atkins, E. C. & Co., Indianapolis, Ind

Barb Wire and Fence.
Continental Wire Co., St. Louis, Mo.
Gautier Steel Dept. of Camoria Iron Co., Johnstown Pa.
Indiana Wire Fence Co., Crawfordsville, Ind.
Iowa Barb Wire Co., 98 Reade, N. Y.
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Ludlow-Saylor Wire Co., St. Louis, Mo.
St. Louis Wire Mill Co., St. Louis, Mo.
Washburn & Moen Mfg. Co., Worcester.

Bar Iron, *Manufacturers of*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Philadelphia.
Boonton Iron & Steel Co., Boonton, N.J.
Montour Iron & Steel Co., Danville, Pa.
Mahoning Valley Iron Co., Youngstown, Ohio.
Reeves Iron Co., Canal Dover, O.
Springfield Iron Co., Springfield, Ill.
Sternbergh, J. H. & Son, Reading, Pa.

Bellows, *Manufacturers of.*
Bullock Bellows Co., Cleveland, O.
Scott, Geo. M., Chicago, Ill.

Bells.
Bevin Bros. Mfg. Co., East Hampton.

Belt Dressing.
Jos. Dixon Crucible Co., Jersey City, N.J.

Belt Fasteners.
Clafien Mfg. Co., Cleveland, Ohio.
Talcott, W. O., Providence, R. I.

Belting, *Makers of.*
Alexander Bros., 412 N. 3d., Phila.
Jeffrey Mfg. Co., Columbus, O.
Link Belt Engineering Co., Phila., Pa.
Main Belting Co., Philadelphia, Pa
N. Y. Belting & Packing Co., Ltd., N. Y.
Shults Belting Co., St. Louis, Mo.

Bicycles.
Coventry Machinists Co., L'd, Boston, Mass.
Eagle Bicycle Mfg. Co., Torrington, Ct.
Lovell, Jno P. Arms Co, Boston, Mass
Monarch Cycle Co., Chicago, Ill.
Pope Mfg. Co., Boston, Mass.
Read, Wm. & Sons Boston Mass.
Rouse Duryea Cycle Co., Peoria, Ill.
Sweeting Cycle Co., Philadelphia, Pa.
Western Wheel Works, Chicago, Ill.

Bits and Braces.
Backus Mfg. Co., Williamsport, Pa.
Bridgeport Gun Implement Co., 313 315 Broadway, N. Y.
Jennings & Co., 97 Chambers, N.Y
Sargeant, Dunn & Alder, 97 Chambers St., N. Y.

Blocks, Tackle, *Makers of.*
Boston and Lockport Block Co., Boston, Mass., and Lockport, N. Y
Cleveland Block Co., Cleveland, O.
Fulton Iron & Engine Works, Detroit Mich.
Toledo Block Works, Toledo, O.

Blowers.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F., & Co., Boston, Mass.

Boiler Makers' Rolls.
New Doty Mfg. Co., Janesville, Wis.

Boiler Plates.
McIlvain, Wm. & Sons, Reading, Pa.
Lukens Iron & Steel Co., Coatsville, O.
Pottstown Iron Co., Pottstown, Pa.

Boilers, Copper.
Randolph & Clowes, Waterbury, Conn

Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt.
Campbell & Zell Co., Baltimore, Md.
Chandler & Taylor Co., Indianapolis.
Edge Moor Iron Co., Wilmington.
Harrisburg Foundry & Mch. Works, Harrisburg, Pa.
Pollock, W. B. & Co., Youngstown, O.
Southwark Fdy. & Mch. Co., Phila., Pa
Wetherill, Robt. & Co., Chester, Pa.

Bolt Cutters.
Chambers Bros. Co., Philadelphia.
Howard Iron Works, Buffalo N. Y.
Wells Bros. Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Books.
Lamberson, B., Portland, Ore.
Mallett, D. T., New Haven, Conn.
Williams, David, 96 & 102 Reade N. Y.
Wolcott & West, Syracuse, N. Y.

Boxes, Hdw. Shell, &c.
Green, A. H., 22 Park Place, N. Y.
Jones, Jesse & Co., Philadelphia, Pa.

Box Openers.
Paragon Mfg. Co., 112 Chambers St.,

Box Straps.
Fugsley & Chapman, 8 Liberty St, N.Y

Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., N. Y.
Davol, John & Sons, 100 John, N. Y.
Holmes, Booth & Haydens, N. Y.
Plume & Atwood Mfg. Co., N. Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Wks., Rome.
Scoville Mfg. Co., Waterbury, Conn.
Waterbury Brass Co., 296 B'way, N. Y.

Brass Butt Hinges.
Tiebout, W. & J., 16 & 18 Chambers.

Brass Founders.
Cramp, Wm. & Sons, S & E. B. Co., Philadelphia, Pa
Haight & Clark, Albany, N. Y.
Reeves, Paul S., Philadelphia.
Springfield Foundry Co., Springfield, Mass.

Brass Goods.
Brass Goods Mfg. Co., 88 Chambers,

Bridge Builders.
Berlin Iron Bridge Co., East Berlin, Ct

Bronze (Tobin).
Ansonia Brass & Copper Co., 19-26 Cliff Street, N. Y.

Builders' Hardware.
Claflin Mfg. Co., Cleveland, Ohio.
Deitz, A. E., 97 Chambers St., N. Y.
Reading Hdw Co., Reading, Pa.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford, Ct.

Butcher and Shoe Knives, *Manufacturers of.*
Goodell Co., Antrim, N. H.
Wilson, John, Sheffield, England.

Butts and Hinges.
McKinney Mfg. Co, Alleghany, Pa.
Sabin Machine Co., Montpelier, Vt.
Stanley Works, New Britain, Conn.
Tiebout, W & J., 16 Chambers, N. Y.

Calipers and Dividers.
J. Stevens Arms and Tool Co., Chicopee Falls, Mass.
Starrett, L. S., Athol, Mass.

Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Can Openers.
Chieftain Company, Canton, O.

Car Axles.
Roberts, A. & P. & Co. Phila.

Carboy Stands.
Hillebrand & Wolf, Philadelphia, Pa.

Car Wheels.
Whitney, A. & Sons, Phila.

Carriage Hardware, *Makers of.*
Covert, E Mfg.Co., Farmer Village, N.Y.
McKinnon Dash & Hdw. Co., Ltd., Buffalo, N. Y.
Scranton Forging Co., Scranton, Pa.
Smith, H. D. & Co., Plantsville, Conn.
Wilcox & Howe Co., Birmingham, Conn.

Cartridge Reloading Tools.
Ideal Mfg. Co., New Haven, Conn.

Casters, Wheel, &c.
Clark, G. P., Windsor Locks, Conn.

Castings, Iron and Steel.
Ames Sword Co., Chicopee, Mass.
Arcade Malleable Iron Co., Worcester Mass.
Aschman Steel Casting Co, Sharon, Pa
Booth, The Lloyd, Co., Youngstown, O.
The Furr & Houston Co., Brooklyn, N.Y.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Cheney, S. & Son, Manlius, N. Y.
Chester Steel Casting Co., Phila.
Eureka Cast Steel Co., Chester, Pa.
Flagg, Stanley G. & Co., Phila.
Haight & Clark, Albany, N. Y.
Hammer & Co., Branford, Conn.
Heads Iron Foundry, Utica, N. Y.
Herrick, J. A, 284 Pearl St., N. Y.
Jackson & Woodin Mfg. Co., Berwick, Pa.
Johnson Company, Johnstown, Pa.
Johnson Foundry Co., Johnstown, Pa.
Johnson, I. G. & Co., Spuyten Duyvil.
Mahoning F'dry & Mch. Co., Danville, Pa.
New Castle Steel Casting Co., New Castle, Pa.
Norristown Steel Co., Norristown, Pa.
North Bros. Mfg. Co., Phila.
Northwest Malleable Iron Co., Milwaukee, Wis.
Novelty Iron Works, Allentown, Pa.
Palmers & De Mooy, Cleveland, O.
Pratt & Letchworth, Buffalo, N. Y.
St. Louis Steel Fdy. Co, St. Louis, Mo.
Sessions Foundry Co., Bristol, Conn.
Spencer's, L. S., sons, Guilford, Conn.
Shepard Hdw. Co., Buffalo, N. Y.
Springfield Fdry. Co., Springfield.
Springfield Steel Casting Co., Springfield, O.
Standard Fdy. & Mfg. Co., Cleveland, O
Standard Steel Casting Co., Thurlow.
Syracuse Steel Foundry, Syracuse.
Taylor & Boggis Fdry Co., Cleveland, O.
Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.
Trenton Mal. Iron Co., Trenton, N. J.
Union Mfg. Co., 103 Chambers St., N.Y.
Waukegan I. & S. Casting Co., Chicago, Ill.
Wetherill, Robt. & Co., Chester, Pa.

Cellar Drainers.
Friedenwald Bros., Baltimore, Md.

Chains.
Bradlee & Co., Philadelphia.
Bridgeport Chain Co., Bridgeport, Conn
Wm. H. Haskell Co., Pawtucket, R. I.
Link-Belt Engineering Co., Phila. a.
McKay, Jas. & Co., Pittsburgh, Pa.

Cherry Stoners.
Enterprise Mfg. Co., Philadelphia, Pa.

Chimneys.
Phila. Engineering Works., Phila., Pa.

Chisels, *Manufacturers of.*
Buck Bros., Millbury, Mass.
White, L. & I. J., Buffalo, N. Y.

Chucks.
Graham Twist Drill & Chuck Co., Detroit, Mich.
Hoggson & Pettis Mfg. Co., New Haven, Conn.
Horton, E. & Sons Co., Windsor Locks Conn
Nat. Chuck Mfg. Co., Mt. Vernon, N. Y.
Smith & Egge Mfg. Co., Bridgeport.
Union Mfg. Co., 103 Chambers, N. Y.
Whiton, D. E. Mach. Co., New London, Conn.

Clamps.
Hammer & Co., Branford, Conn.
Le Count, C. W., So. Norwalk, Conn.

Clipping Machines.
McCoy, Jos. F. & Co., 26 Warren St.

Clock Springs, *Manuf'rs of*
Haley Mfg. Co., Concord, N. H.

Coal.
Wister, Francis, Philadelphia

Coffee and Spice Mills.
A cade Mfg. Co., E Freeport, Ill
Chillicothe Mfg. Co., Chillicothe, O
Lane Bros., Poughkeepsie, N. Y.

Coke.
Frick, H. C. Coke Co., Pittsburgh, Pa.
Wister, Francis, Philadelphia, Pa.

Collections.
Hardware Board of Trade (Limited) 4 and 6 Warren, N. Y.

Conveyors.
Link Belt Engineering Co., Phila., Pa.

Copper
Ames Sword Co., Chicopee, Mass.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Edes, Edw. L., Plymouth, Mass.
Hendricks Bros., 19 Cliff, N. Y.
New Haven Copper Co., 294 Pearl, N.Y.
Randolph & Clowes, Waterbury, Conn.
Rome Brass and Copper Works, Rome, N. Y.
Wister, Francis, Philadelphia, Pa.

Cordage.
Elizabethport Cordage Co., 46 South.
Samson Cordage Works, Boston, Mass.

Corn Huskers.
Perkins, A. H. Mfg. Co. Kewanee, Ill.

Corrugated Furnaces.
Continental Iron Works, Brooklyn N. Y.

Corrugated Iron.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Milier, Jas A. & Bro. Chicago, Ill.
Moseley Iron Bridge & Roof Co., 5 Day, N. Y.

Counting Machines.
Osborn, G. Edw. & Co., New Haven, Ct.

Coupling.
Aimond, T. R., Brooklyn, N. Y.

Coverings, Boiler and Pipe.
Johns, H. W. Mfg. Co., 87 Maiden Lane.

Cranes.
Allentown Rolling Mills, Allentown, Pa
Detroit Foundry Equipment Co., Detroit, Mich.
Maris Machine Co., Philadelphia, Pa.
Ridgway, Craig & Sons, Coatesville, Pa
Sellers, Wm. & Co., Inc., Phila., Pa.
Yale & Towne Mfg. Co., Stamford, Conn.

Cupolas, Hot-Blast.
Byram & Co., Detroit, Mich.
Colliau, Victor, Detroit, Mich.
Detroit F'dry Equipment Co., Detroit, Mich.

Curry Combs.
Noyes, B. B. & Co., Greenfield, Mass.

Cutlery, *Importers of.*
Sickles, Sweet & Lyon, 35 Barclay, N.Y.

Cutlery, *Manufacturers of.*
Amer. Cutlery Co. Chicago, Ill.
Dame, Stoddard & Kendall, Boston Mass.
Electric Cutlery Co., 91 Chambers, N.Y
Goodell Co., Antrim, N. H.
Jordan, A. J., St. Louis, Mo.
Landers, Frary & Clark, New Britain, Conn.
Northampton Cutlery Co., Northampton, Mass.
Wilson, John, Sheffield, England.

Dog Collars.
Bremer, L., 44 Duane St., N. Y.
Chapman Mfg. Co., Meriden, Conn.

Door Knobs.
Bardsley, J., 149 & 151 Baxter St., N. Y.

Drilling Machines.
Beaman & Smith, Providence, R. I.
Boynton & Plummer, Worcester, Mass.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower and Forge Co., Lancaster, Pa.
Colburn, A. L., New Haven, Conn.
Dallett, Thos. H. & Co., Philadelphia.
Dwight Slate Machine Co., Hartford, Conn.
Halsey, Jas. T., Philadelphia, Pa.
Illinois Iron and Bolt Co., Carpentersville, Ill.
Millers Falls Co., 98 Reade, N. Y.
Norton & Jones Machine Tool Works Plainville, Conn.
Prentice Bros., Worcester, Mass.
Quint, A. D., Hartford, Conn.
Sellers, Wm. & Co., Inc., Phila., Pa
Sibley & Ware, So. Bend Ind.
Sigourney Tool Co., Hartford, Conn.
Silver Mfg. Co., Salem, O.
Universal Radial Drill Co., Cinn., Ohio
Wiley & Russell Mfg. Co., Greenfield Mass.

Drop Forgings.
Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J.
Merrill Bros., 26 First, Brooklyn, E. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa.
Rhode Island Tool Co., Providence, R. I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 533 to 564 West 16th, N. Y.

Electric Elevators.
Smith Hill Co, Quincy, Ill.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of.*
Link-Belt Engineering Co., Phila., Pa
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R. I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co, Bridgeport, Conn
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co. incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa.
Swindell W. & Bros., Pittsburgh, Pa.
Taliman, F. G., Pittsburgh, Pa.
Zellweger, J., Chicago Ill.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Buckeye Engine Co., Salem, Ohio.
Chandler & Taylor Co., Indianapolis.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry & Machine Works, Harrisburg, Pa.
Norwalk Iron Works Co., S. N
Shipman Engine Co., Boston, Mass.

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Southwark Foundry and Machine Co., Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden. *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N.Y.
Kelley, B. F. & Son, 31 Liberty St., N. Y.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum E. T. Detroit, Mich.
Buffalo Fence Wire Co., Buffalo, N. Y.
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
DeKalb Fence Co., DeKalb, Ill
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kretscher B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Presbrey Stove Lining Co., Taunton, Mass.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago,

Fly Fans.
Wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Foos Mfg. Co., Springfield, Ohio.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Foundry Riddles.
Estey, W. S., 65 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collau, Victor, Detroit, Mich.
S. Obermayer Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass

Fruit Presses.
Enterprise Mfg. Co., Philadelphia, Pa.
Shepard Hdw. Co. Buffalo, N. Y.

Furnaces, Foundry.
Byram & Co., Detroit, Mich.

Garden Tools.
Cleves, W. B., Binghamton, N. Y.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Lancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Mass.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
James, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. . & Co., Gloucester, Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Cleveland Novelty Co., Cleveland, O.
F. & N. Mfg. Co., Richmond, Ind
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grinding Mills.
Foos Mfg. Co, Springfield, O.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Laflin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Central City Bolt Co., Syracuse, N Y.
Chicago Spring Butt Co., Chicago, Ill.
Coburn Trolley Track Mfg Co, Holyoke, Mass
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N.Y.

Hardware Manufacturers.
Brady Mfg. Co., Brooklyn, N.Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 103 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Granam, John H. & Co., 113 Chambers,
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplee, Dunn & Alder, 97 Chambers St., New York.
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Cleveland Fdy. Co., Cleveland, O.
Cop land Hdw. Mfg. Co., Worcester, Mass.
Ellrich Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co, Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
The Stanley Works, New Britain, Conn
Weiland, Chas., 113 Chambers St., N.Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.
Missouri Mal. Iron Co., St. Louis, Mo.

Hog Rings and Ringers.
Hill, Hugh W. & Co., Decatur, Ill.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Maris Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N.Y. Stamping Co., Brooklyn, E.D., N.Y
Stuart & Peterson Co., Phila., Pa.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N.Y.
National Horse Nail Co., Vergennes, Vt,

Horse Shoes. *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. E., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St. N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. R. & Co., Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia

Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keely, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 430 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 Water, St., N. Y.
Leonard, J., 446 West St., N. Y.
Naylor & Co., 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Wangin St. N.Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Joist Hangers.
Duplex Hanger Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Knife Sharpeners.
Mossberg Mfg. Co., Attleboro, Mass.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Dietz, R. E. & Co., 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.
N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Etie & Henger Mfg Co, St. Louis Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St Louis, Mo.

Lead Pipe Cutters.
Barrett, E. C. & Co, Brockton, Mass.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Ath l, Mass.

Locks & Knobs. *Manufacturers of.*
Canton Combination Lock Co., Canton, Ohio.
Claflen Mfg. Co., Cleveland, O.
Dettra, A. E., 97 Chambers, N. Y.
Reading Hdw Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H., Lockport N. H.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E. 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin & Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N Y
Conlter & McKenzie Mch. Co., Bridgeport Conn
Cruikshanx, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co, Laight & Canal Sts.
Gould & Eberhardt, Newark, N. J.
Harrington, E., Son & Co., Phila. Pa.
Henderson Machine Tool Co. Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
Newark Mch. Tool Works, Newark, N.J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y
Ohio Machine Tool Wks, Cincinnati, O.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. P., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ld., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machine Tools.—*See Machinery,*

Machine Work.
Angus, C. H., Albany, N. Y.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Branford, Conn.
Lemont, Ill.
Mo dant F. S. Co., Chicago.
Nortols & Western R. R.
Ogden, Utah
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bethlehem, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrardt, Gustave & Sons, Pittsburg,
Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, H. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochenaour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 150 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies
Eddy Electric Mfg. Co., Windsor, Conn.
Zucker & Levett Chemical Co., 537 to 564 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct.

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.
Williams H. A. Mfg. Co., Boston, Mass

(See Alphabetical Index, Page 106.)

Oil and Grease Cups.
Lunkenheimer Brass Mfg Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Oil Stoves.
Central Oilgas Stove Co., Boston, Mass.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene, Tweed & Co., 83 Chambers St., N. Y. Belting & Packing Co. Ltd., N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co. Jersey City, N.J
U. S. Graphite Co, Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Dudley, W. U. & Co. Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Washington.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Weber, 8 Spruce St., N. Y.

Pencil Sharpeners.
Gcodel Co, Antrim N. H.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Balk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Filling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Manle, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Farclay N. Y.

Pipes, Fittings, &c., *makers of.*
McNab & Harlan Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila, Pa.
Donaldson Iron Co., Emaus, Pa.
Wood, R. D. & Co., Phila.

Plane Irons. *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plate Iron and Steel. *Mfrs of*
Alan Wood Co. Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Weilman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plating, Nickel, Brass and Bronze.
Angus, C. H., Albany N. Y.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massena, C. E. & Co., Newark, N.J.

Post Hole Diggers.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Netting.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O

Manville, E. J, Mch. Co., Waterbury, Ct,
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McGowan, J. H. & Co., Cincinnati, O
Norwalk Iron Wks. Co., So. Norwalk, Conn
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Kegler, Weinschenk & Ohlers Bellevue Ia.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
Cleveland Hdw. Co., Cleveland, Ohio
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. R. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S. & Co., Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. & S., 135 Duane St., N. Y.
Electric Cutlery Co., 91 Chambers, N.Y
Jordan, A. J., St. Louis, Mo
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Henderson, Jas S., 165 Greenwich, N.Y.
Plymouth Rivet, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa

Riveting Machines.
Adt. Jno & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning Fdry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co. Cambridge, O
Cincinnati Corrugating Co. Piqua, O.
Garry Iron & Steel Roofing Co., Cleveland, Ohio.
Johns, H. W. Mfg Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O,

Rope Grip.
Dean Whiting Elevator Co., Worcester Mass.

Rules. *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Saddlery.
Universal Sad Iron Co., Milwaukee, Wis

Sand, Artificial.
Edison, T. A., Ogdensburg, N. J.

Sand Paper.
Bagder, Adamson & Co, Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y
Pullman Sash Balance Co., Rochester, N. Y
Stewart & Baker Rochester, N. Y.

Sash Cord.
Binns' Patent Band Co., Phila., Pa.
Boston Linen Co. Elizabeth, N. Y.
Samson Cordage Works, Boston, Mass
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Duplex Hanger Co, Clevel nd, O,
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co 97 Chambers, N.Y.
National Saw Co., 96 Reade St., N. Y.
Richardson Bros, Newark, N. J.
Simonds Mfg Co, Fitchburg, Mass.

Saw Sets.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N.Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N.Y.

Screens, Door and Window.
Queen Anne screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio
New Britain Hdw. Mfg. Co., New Britain, Conn
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Shatting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel,—*Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Bellevilie Steel Co., St. Louis, Mo.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phœnix Iron Co., Phila., Pa.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24 29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ld., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Heni y, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Skylights
Acme Horticultural & Skylight Wks., 145 Liberty St., N. Y.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg Pa.
Cary, Alanson, 241 & 242 W. 29th St., N. Y.
Danbury Bros., Bristol, Conn.
Haley Mfg. Co. Concord, N. H
Miller & Van Winkle, 10 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Hardsley, J., 149 & 151 Baxter St., N.Y.
Chicago Spring Butt Co., Chicago, Ill.
Shepard Hdw. Co., Buffalo, N. Y.

Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y

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Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N Y

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Am Stamping Co., 104 & 106 John St., New ork
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Avery Stamping Co., Cleveland, O.
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Cobb & Drew, Plymouth Mass.
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Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G & Co., Philadelphia
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., Ltd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co, Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
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Reeves Iron Co., Canal Dover, O.
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Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

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Corning, Edw, & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co. Phila., Pa.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford,
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

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Jessop, Wm. & Sons, Sheffield, England, 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

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Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stoves, Oil, Vapor and Gasoline
Central Oilgas Stove Co., Boston, Mass.

Stove Trimmings
Troy Nickel Works, Troy, N. Y.

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J. R. Torrey & Co., Worcester, Mass.

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Matthiessen & Hegeler Zinc Co. La Salle, Ill.

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A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Disosway & Henderson, 165 Greenwich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover, Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

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Wiley & Russell Mfg. Co., Greenfield, Mass.

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Testing Laboratories.
Riehle Bros. Testing Mch. Co., Philadelphia.

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Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinware.
Am Stamping Co., 104 & 106 John St., N. Y.

Tire Cement.
Am. Trading Co., 182 Front, st., N. Y

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers,
Starrett, L. S., Athol, Mass.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.
Standard Lighting Co., Cleveland, O

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

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Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve Mfg Co., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.

Wagon Jacks.
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Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N.Y.

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Haskell, Wm. H. Co., Pawtucket, R. I.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Water Purifiers.
Bradley & Co., Syracuse, N. Y.

Water and Steam.
Kennedy, D., 52 Cliff St., N. Y.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Window Cord, *Makers of.*
Samson Cordage Works, Boston, Mass

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Mill r & Van Winkle, 102 Walker St.,
New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co, Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Goods, *Manufacturers of.*
Brooks, M. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Eckstein, Chas G & Co., 41 John N. Y

Wire Nails.
Amer. Wire Nail Co., Anderson, Ind.
Baackes Wire Nail Co., Cleveland, O.
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N Y
Indiana Wire Fence Co., Crawfordsville, Ind
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill.
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Wire Rope, Iron and Steel *Makers.*
Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches, *Manufacturers of.*
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Bemis & Call Hardware & Tool Co. Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co Chicago, Ills.
Coes Wrench Co., Worcester, Mass.
Rhode Island Tool Co., Providence, R. I
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., Brooklyn, N. Y.

Wringers.
Colby Wringer Co., Montpelier, Vt.
Peerless Mfg. Co., Cleveland, O.

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Edes, Edw. L., Plymouth, Mass.

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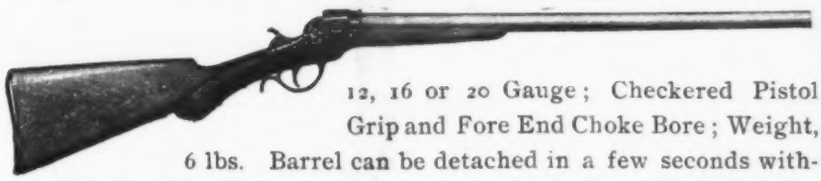

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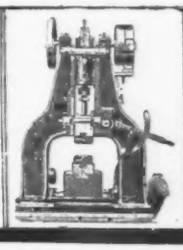

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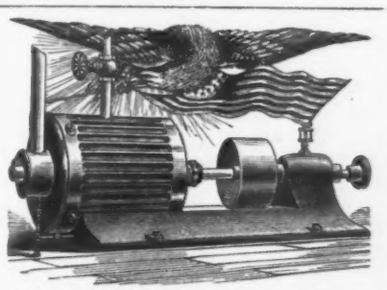

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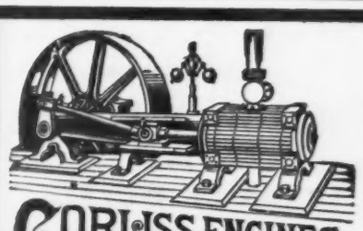

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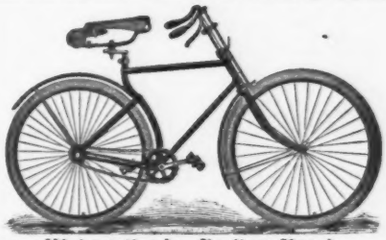

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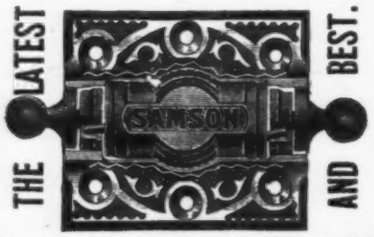

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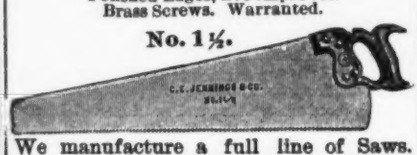

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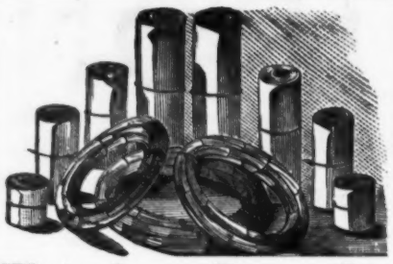

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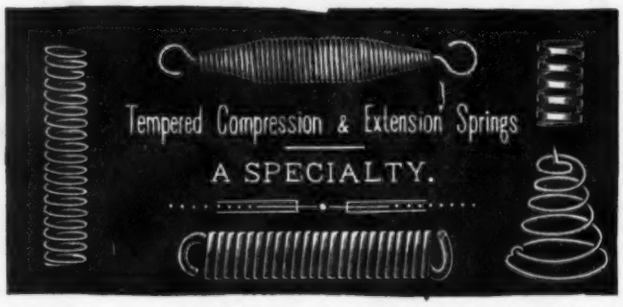

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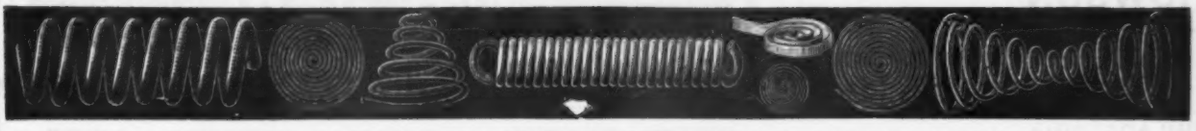

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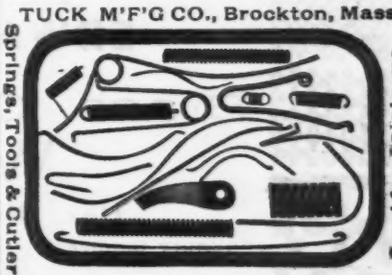
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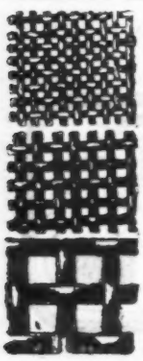

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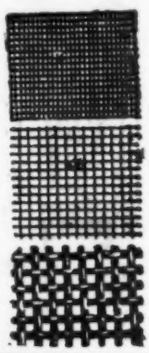

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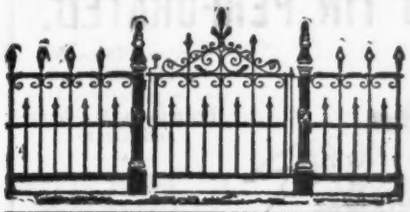

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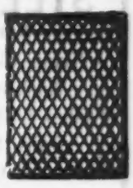

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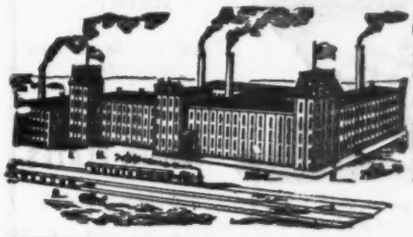

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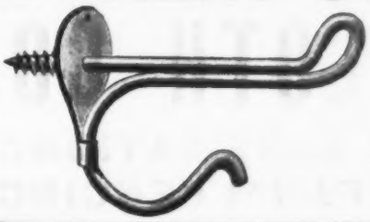

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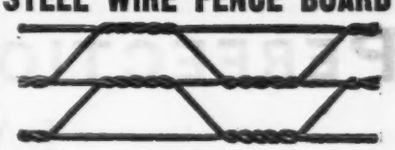

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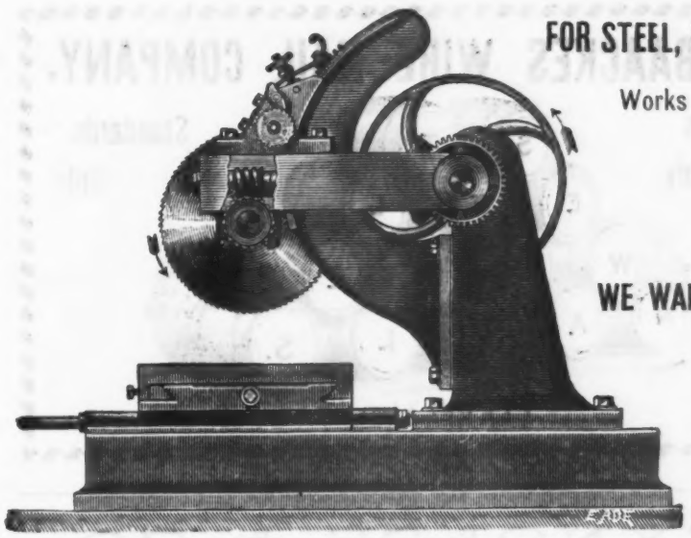

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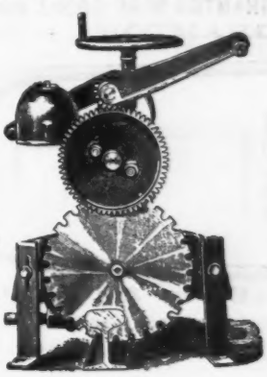

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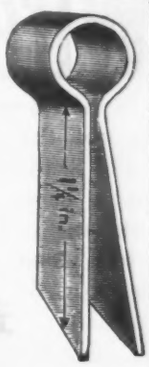

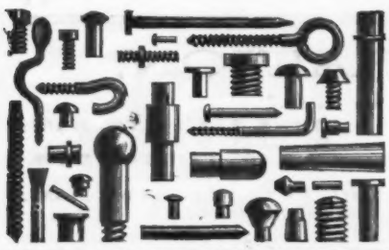

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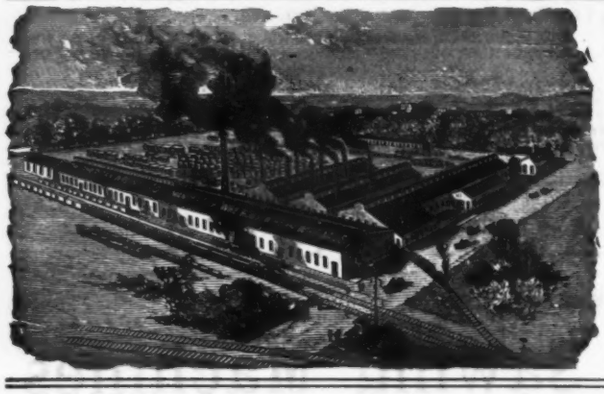

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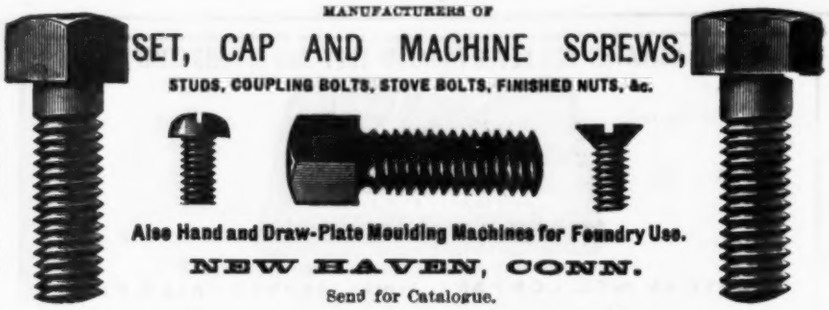

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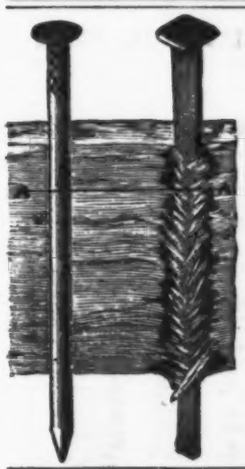

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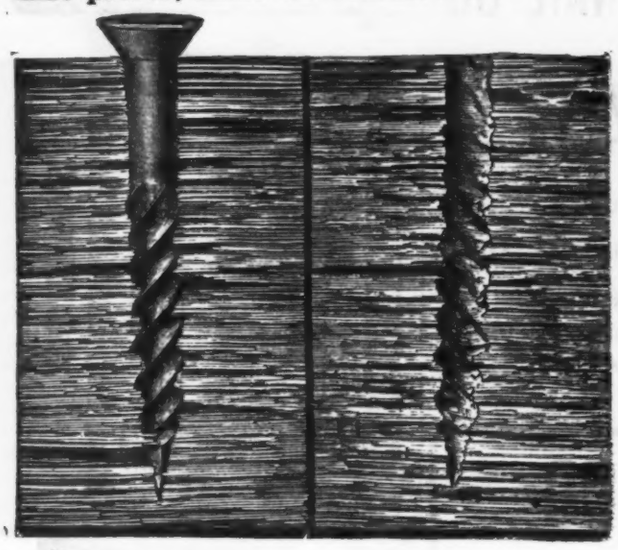

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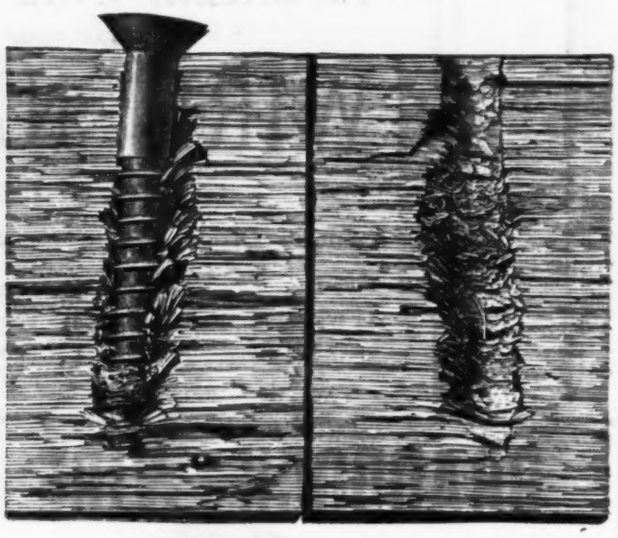

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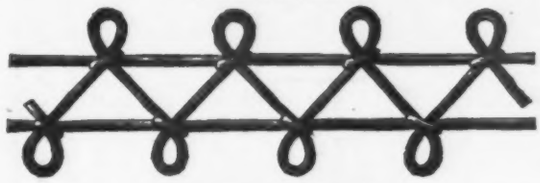

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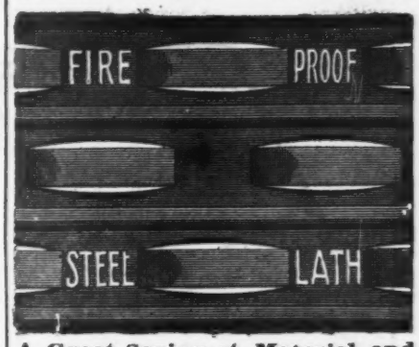

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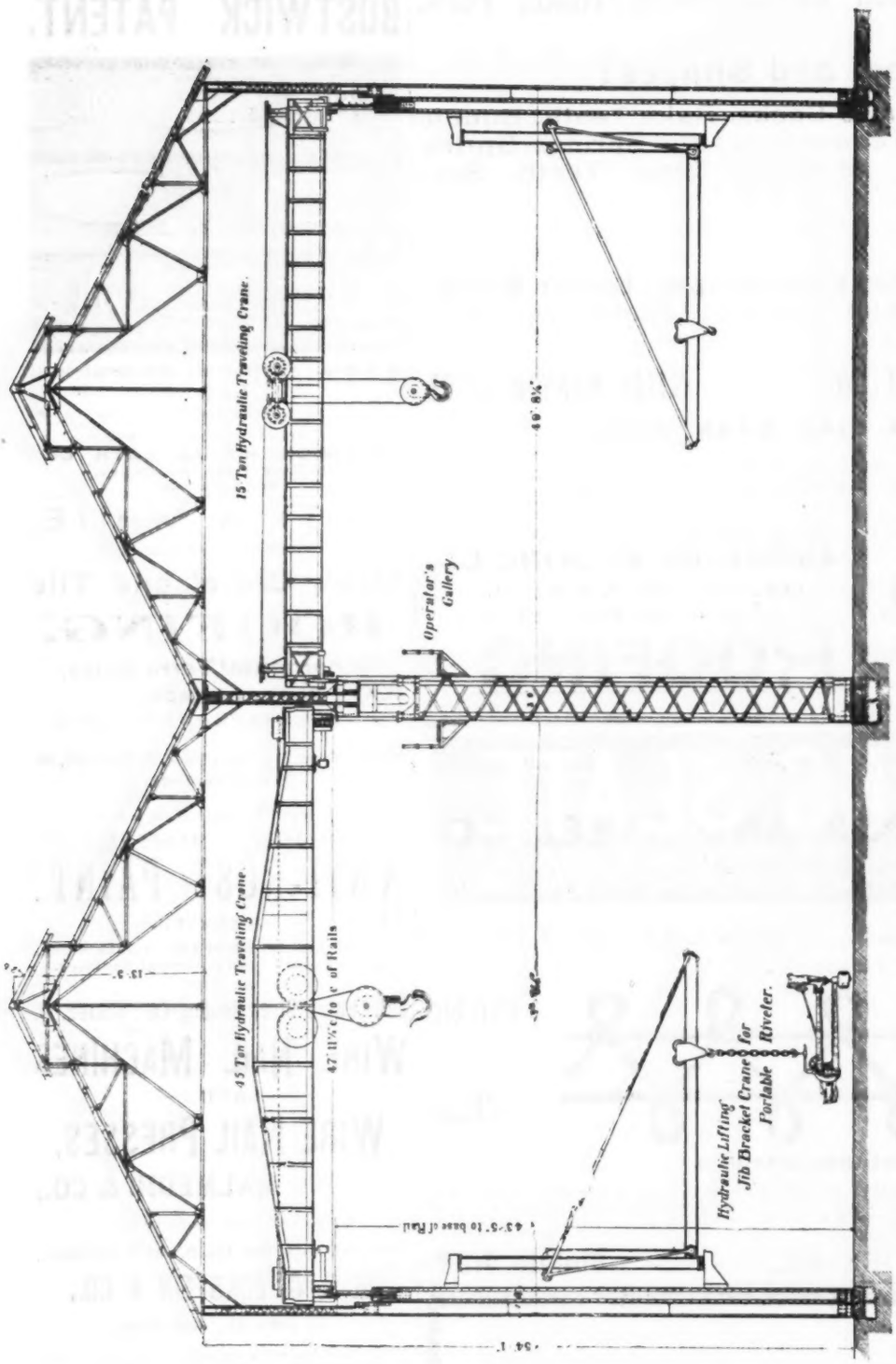

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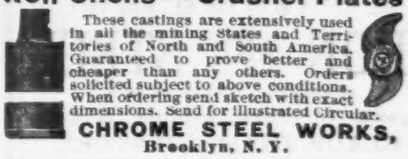

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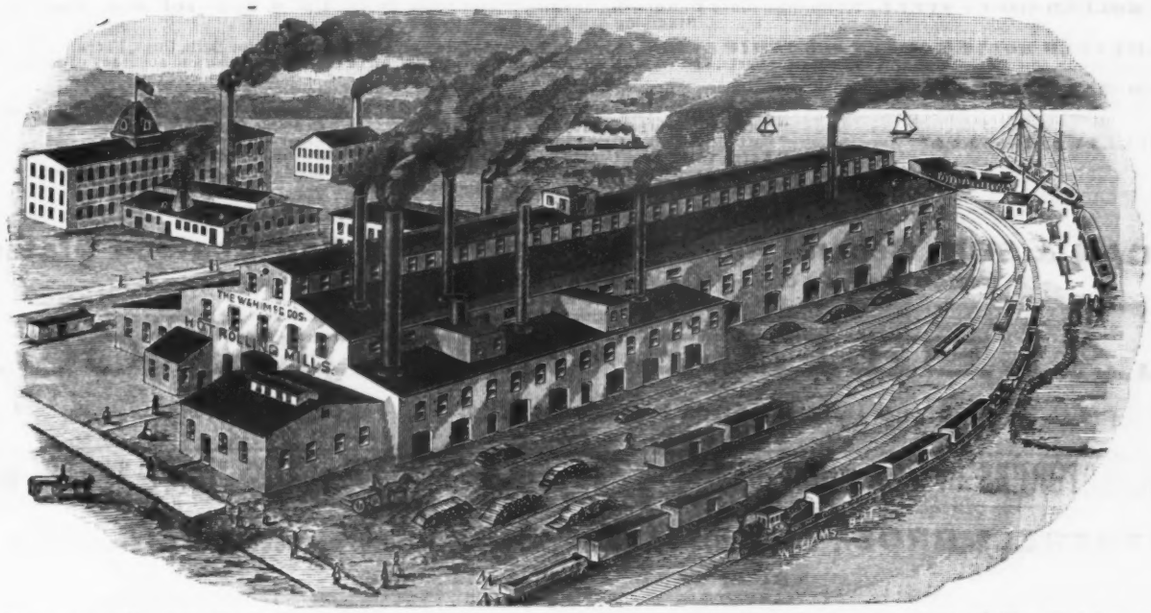

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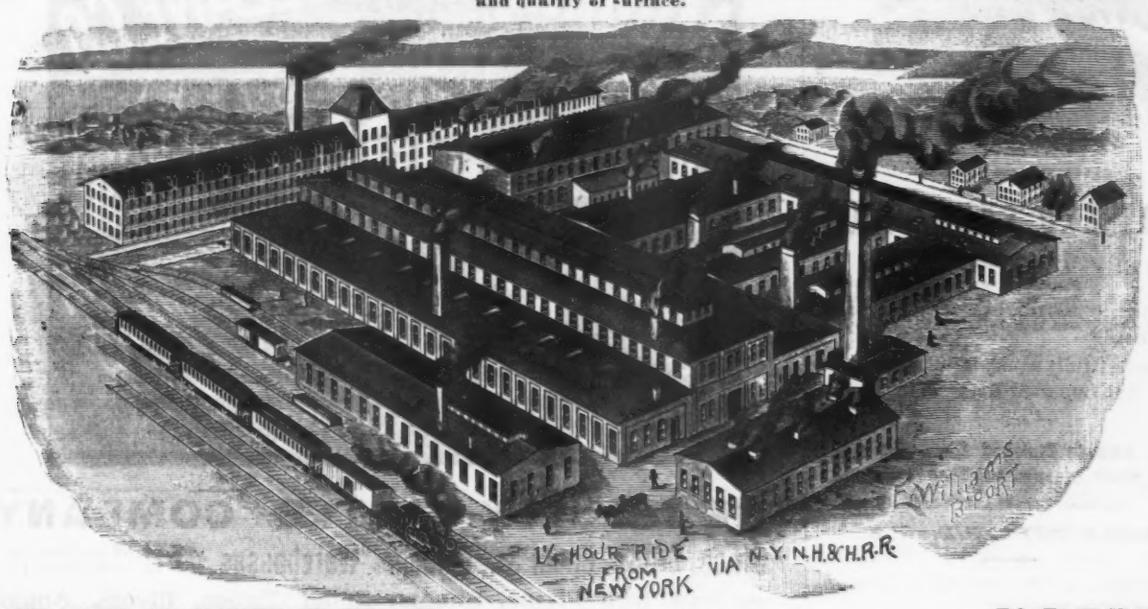

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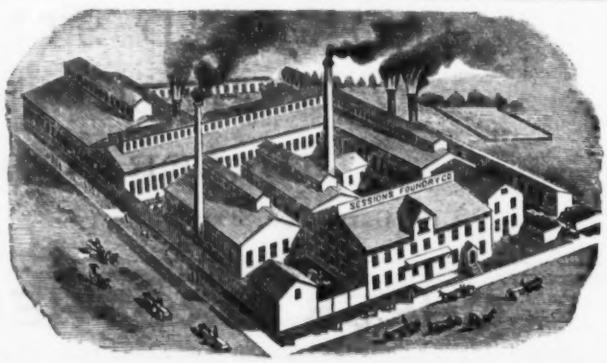

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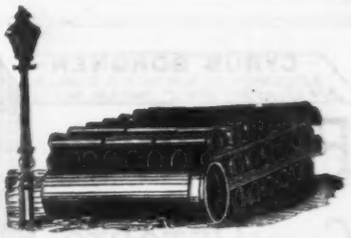

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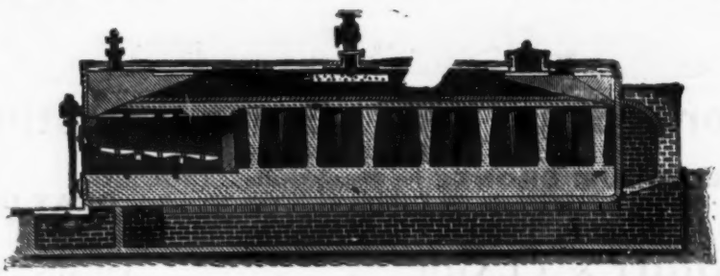

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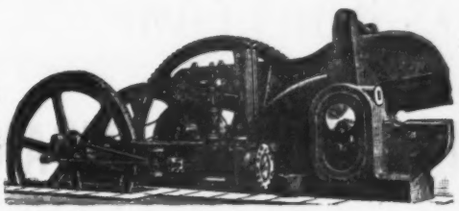

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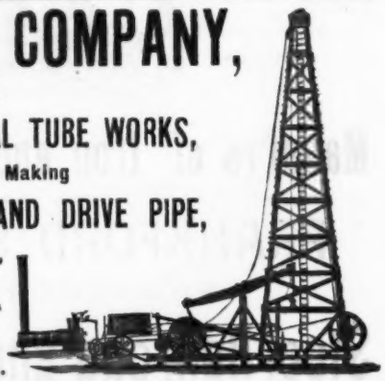

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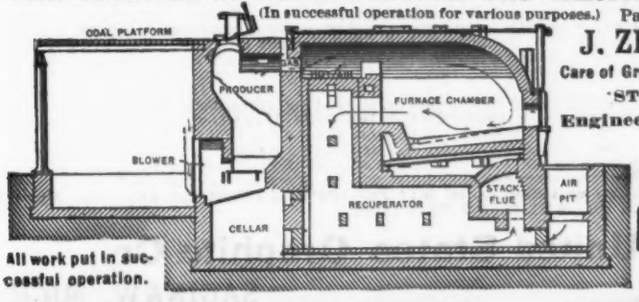

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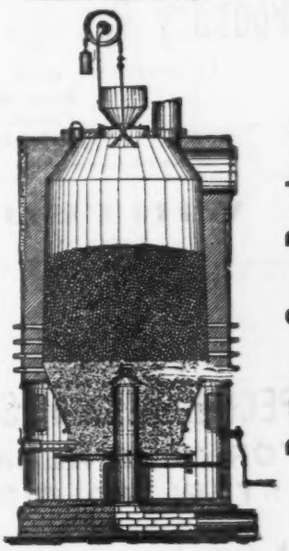

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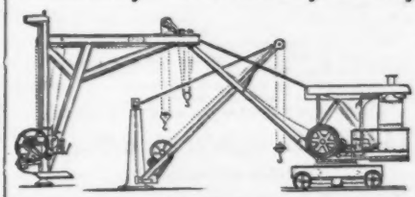

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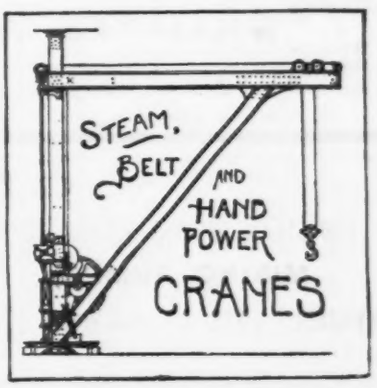

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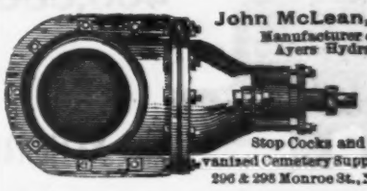

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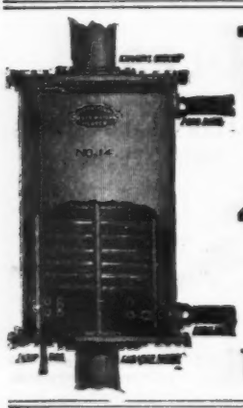

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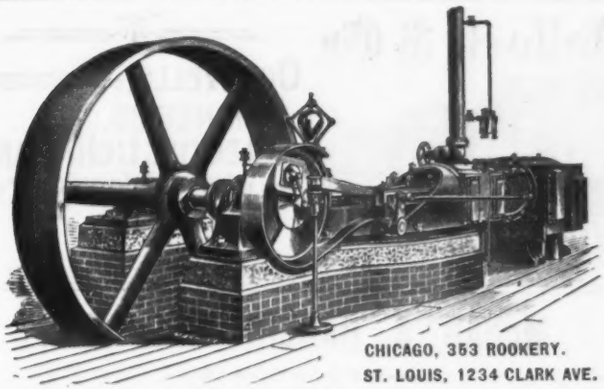

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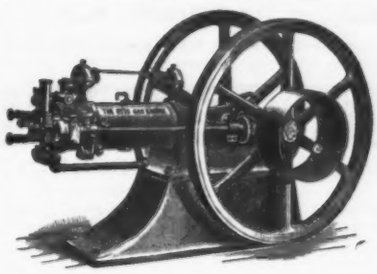

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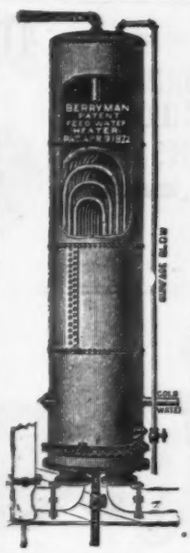

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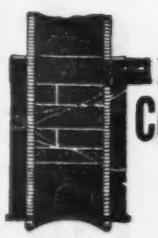

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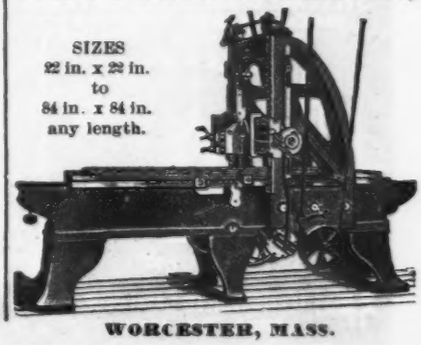

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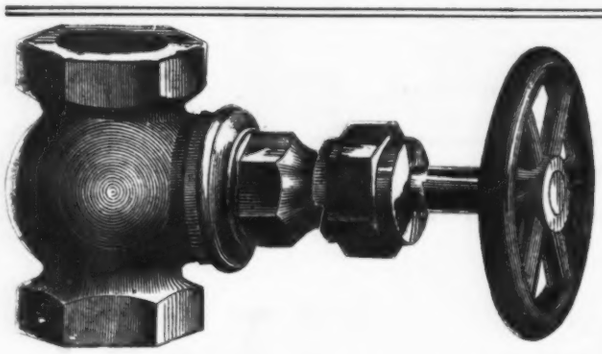

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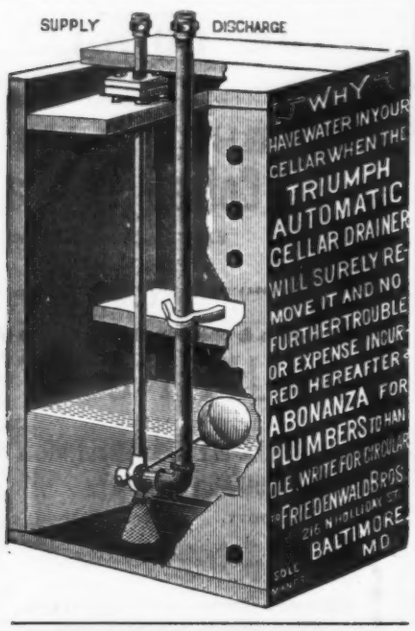

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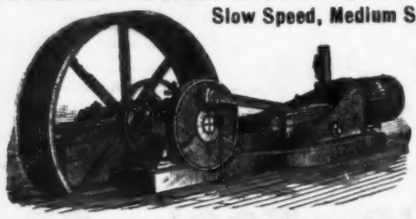

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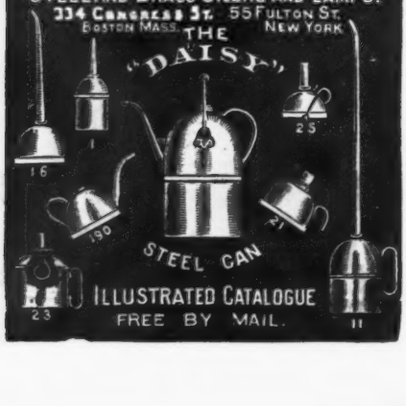

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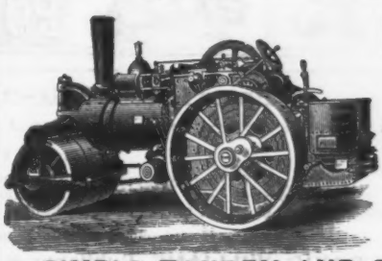

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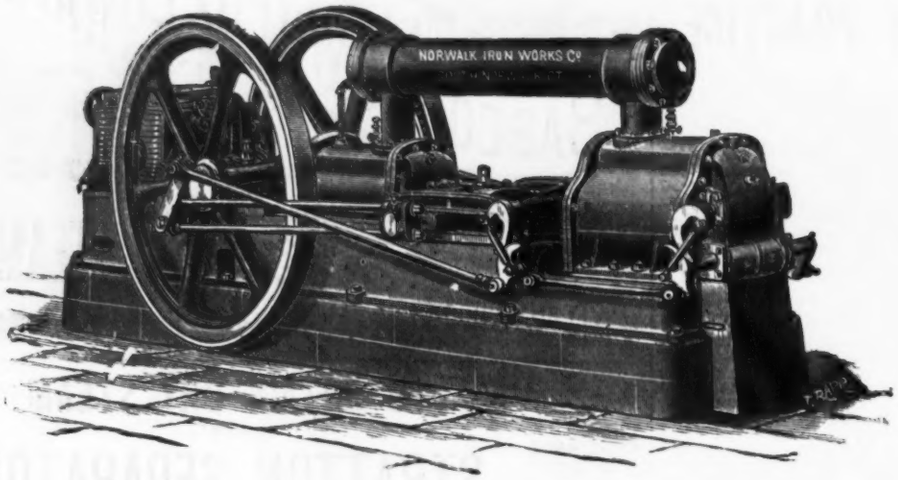

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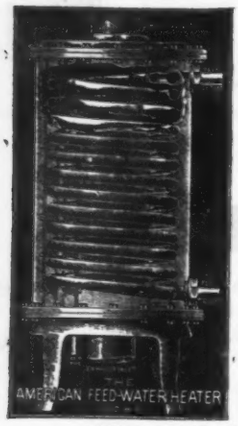

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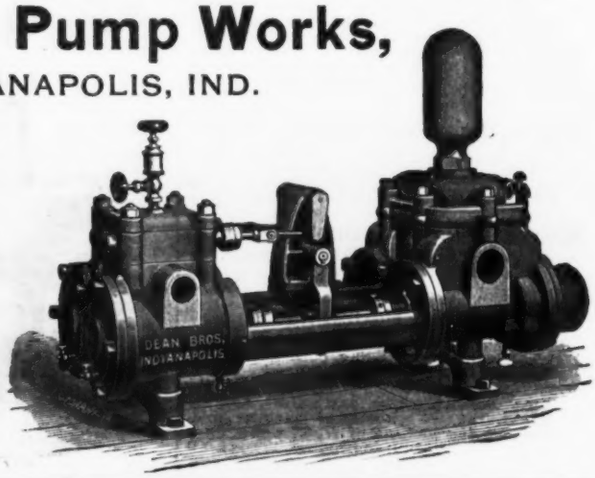

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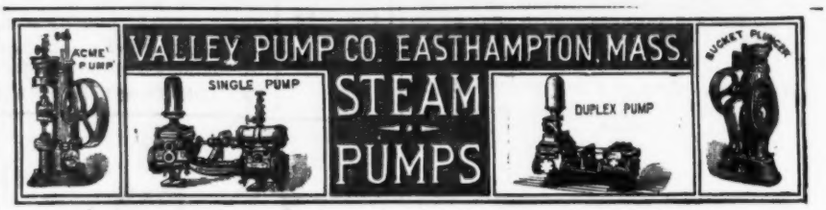

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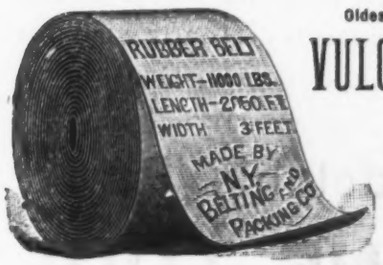

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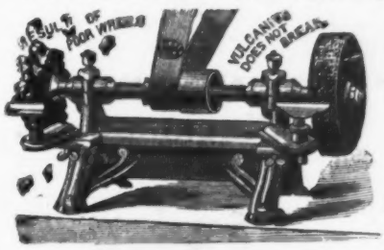

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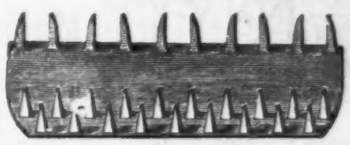

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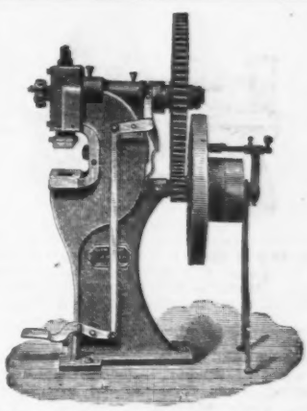

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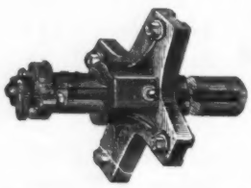

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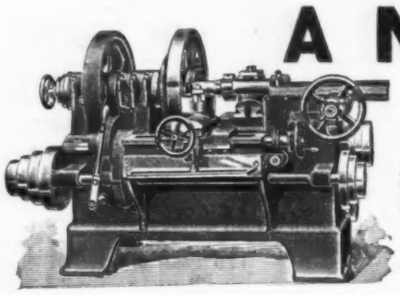

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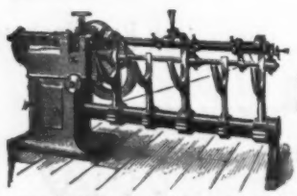

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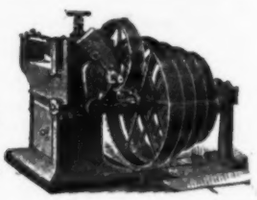

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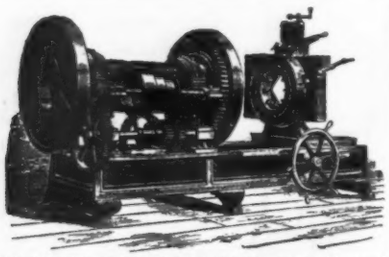

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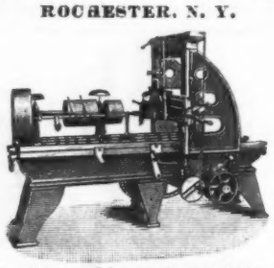

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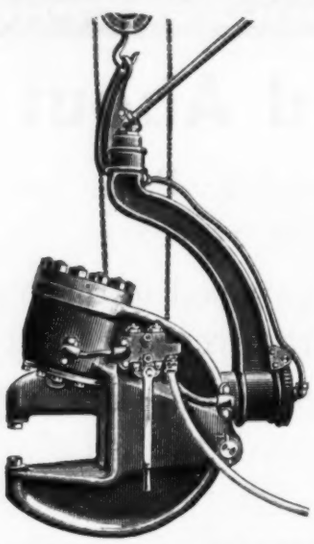

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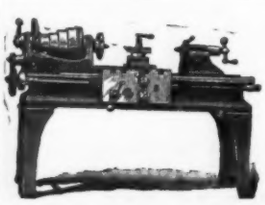

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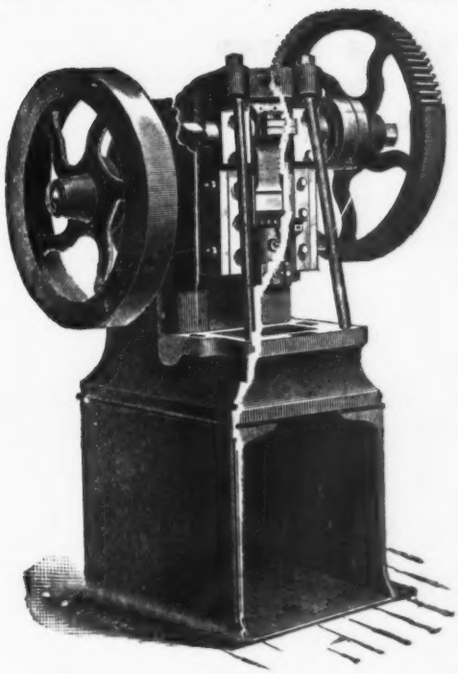

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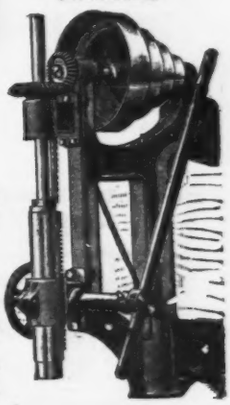

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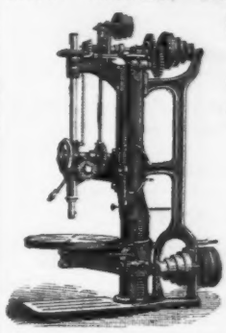

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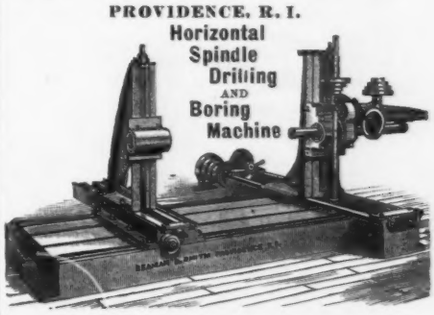

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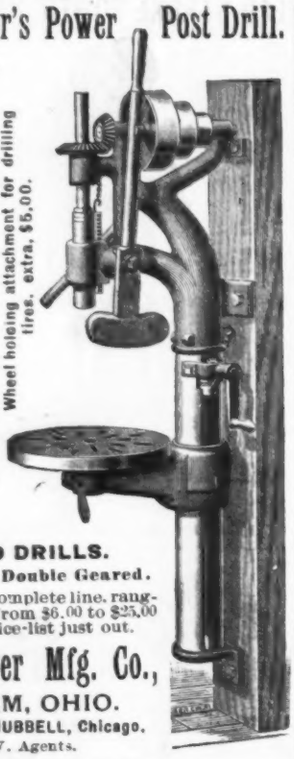

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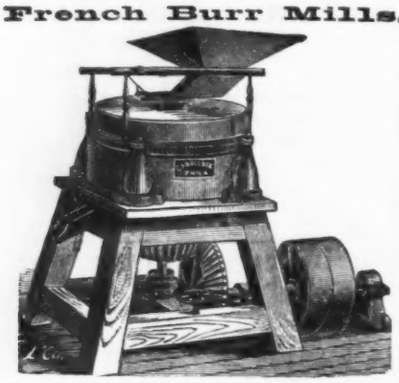

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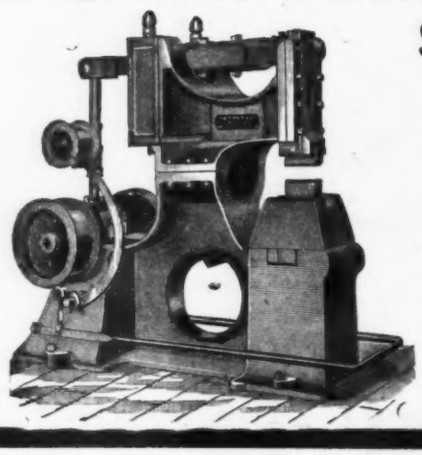

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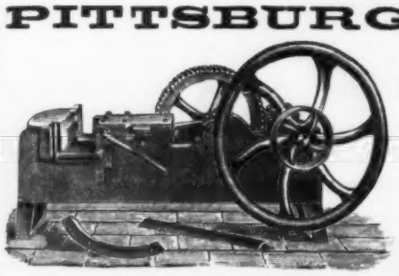

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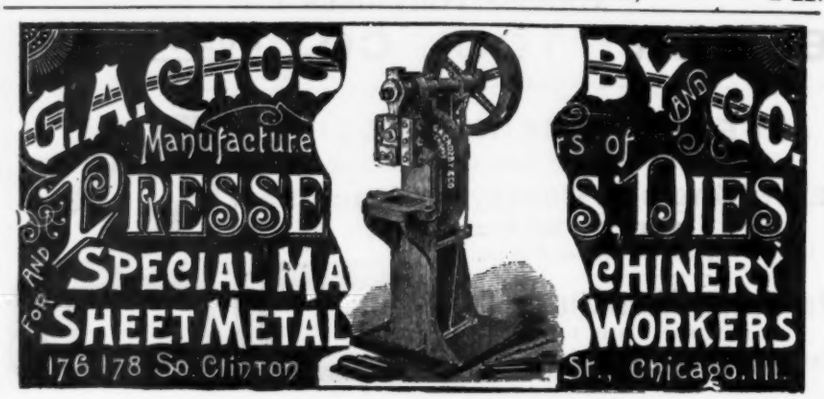

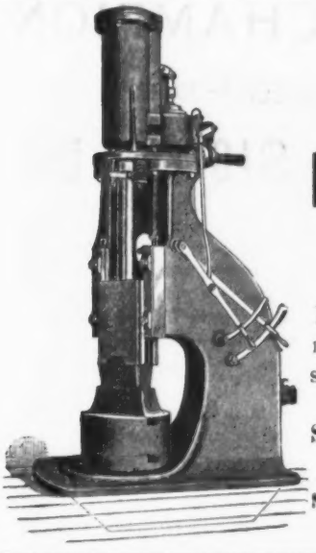

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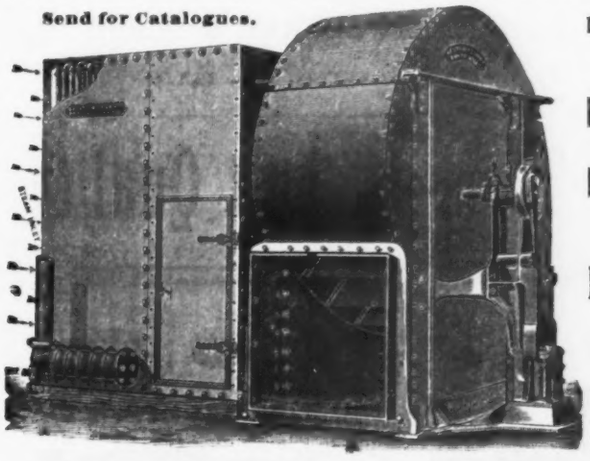

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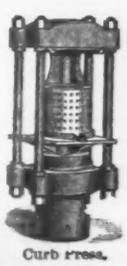

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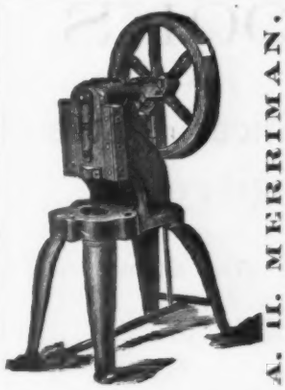

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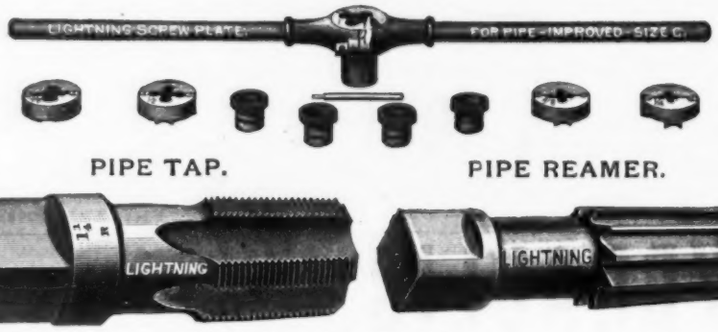

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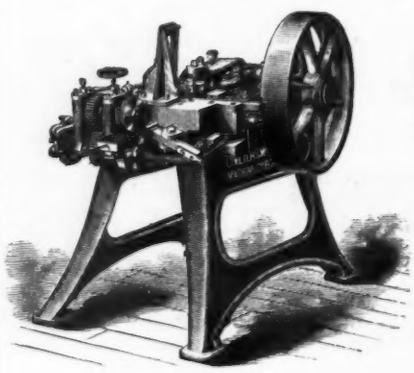

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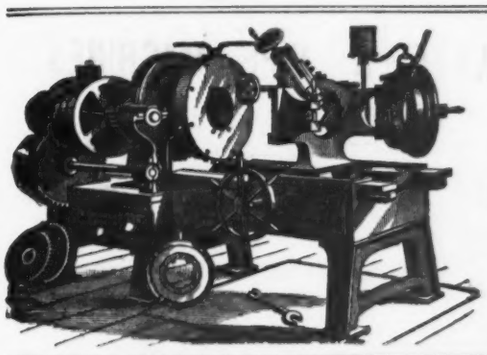

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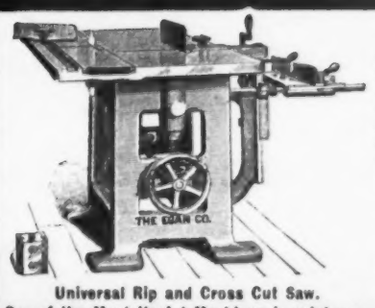

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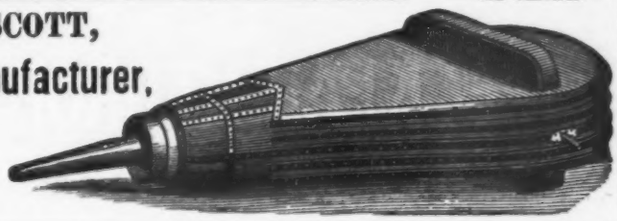

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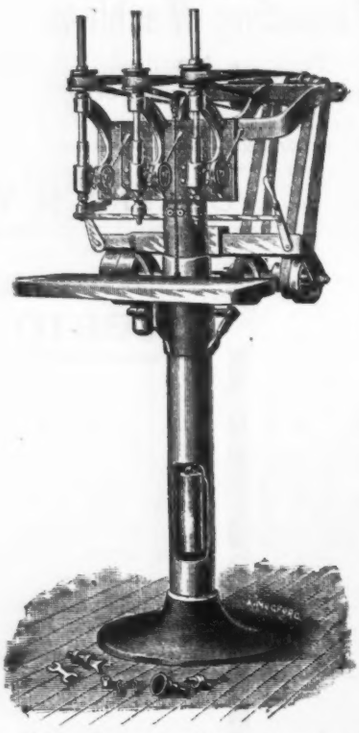

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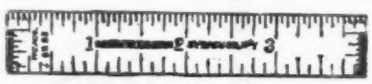

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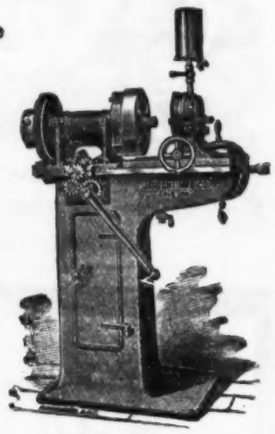

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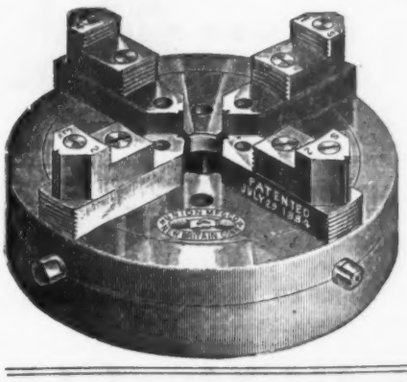

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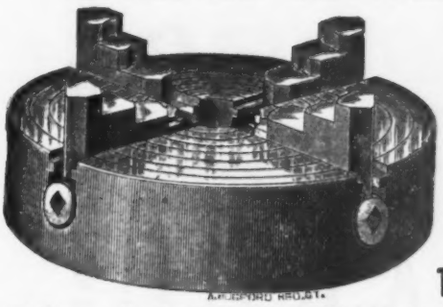

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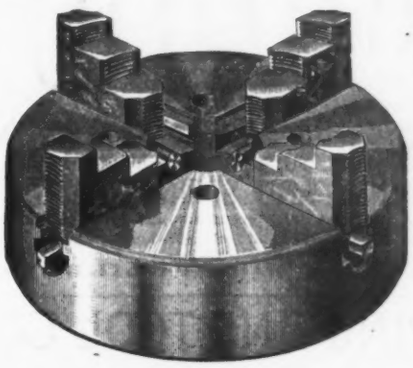

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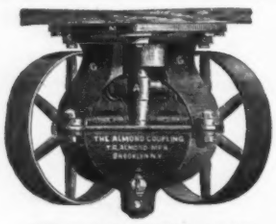

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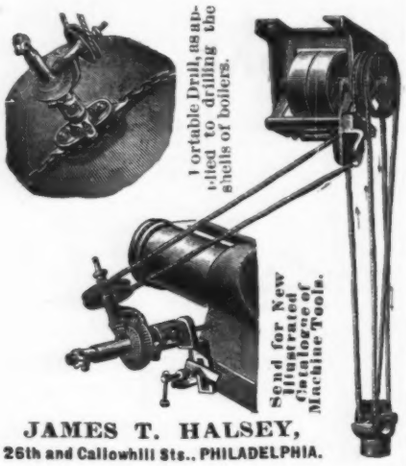

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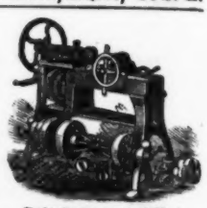

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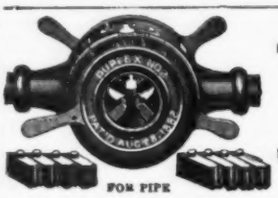

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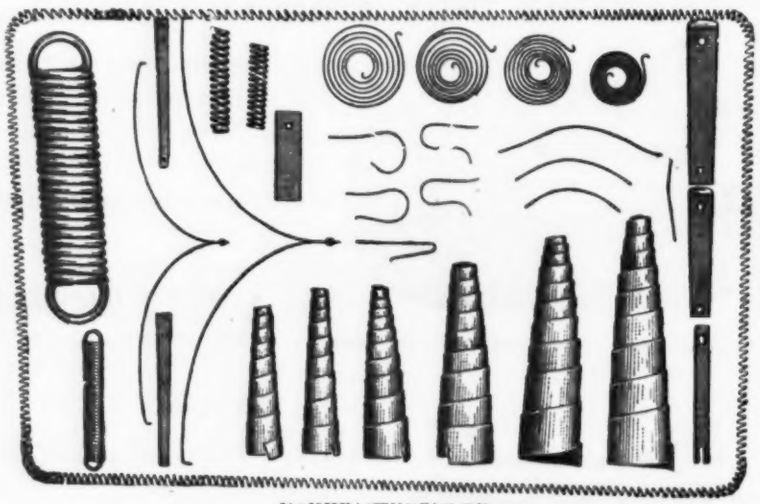

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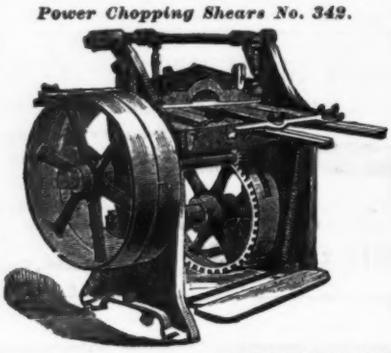

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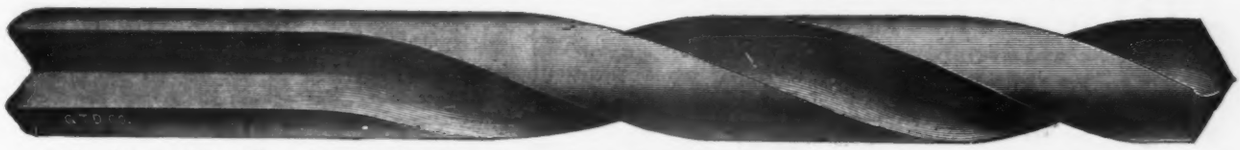

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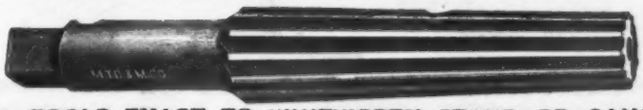

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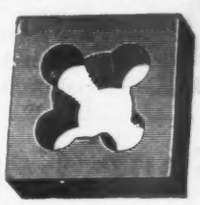

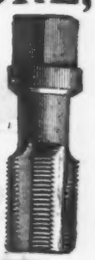

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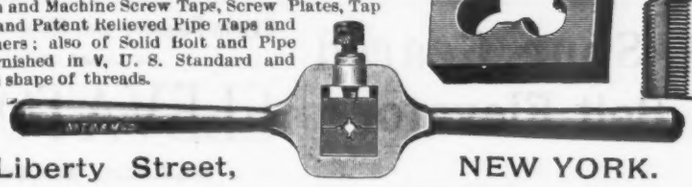

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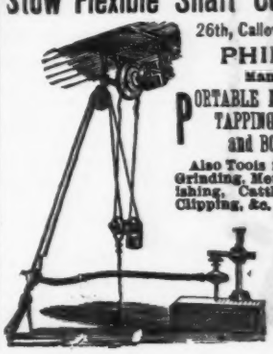

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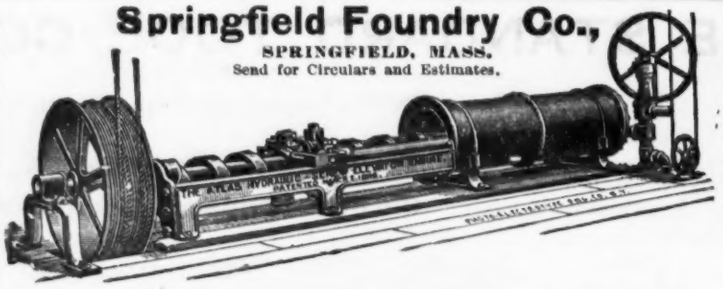

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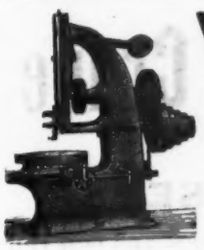

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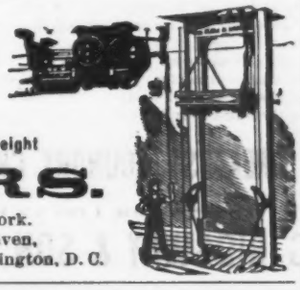

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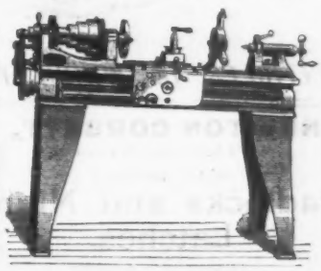

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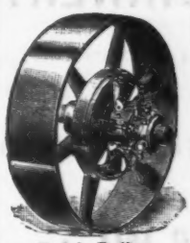

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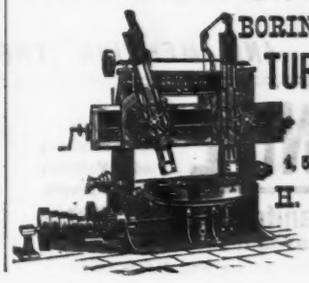

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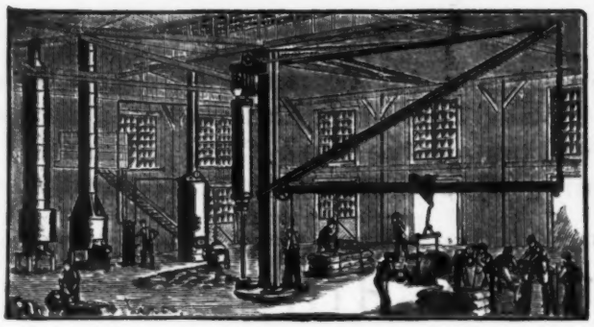

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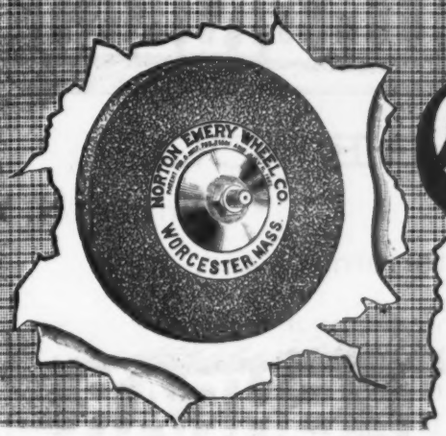

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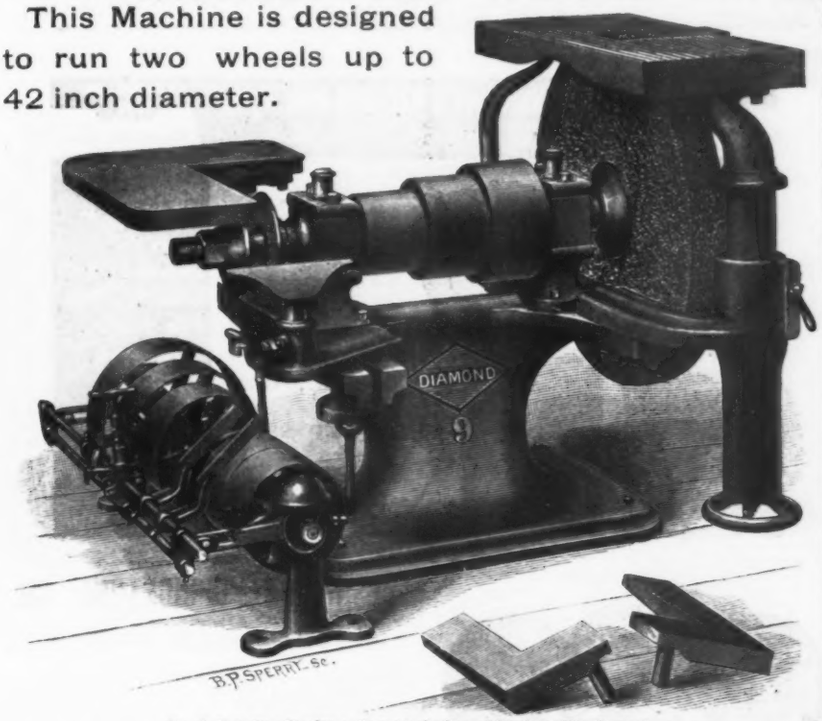

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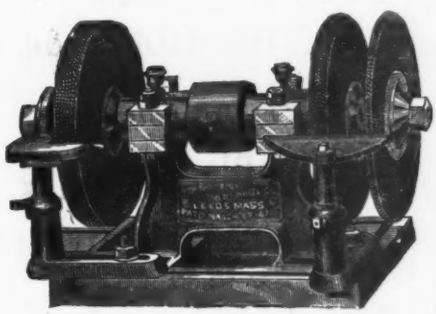

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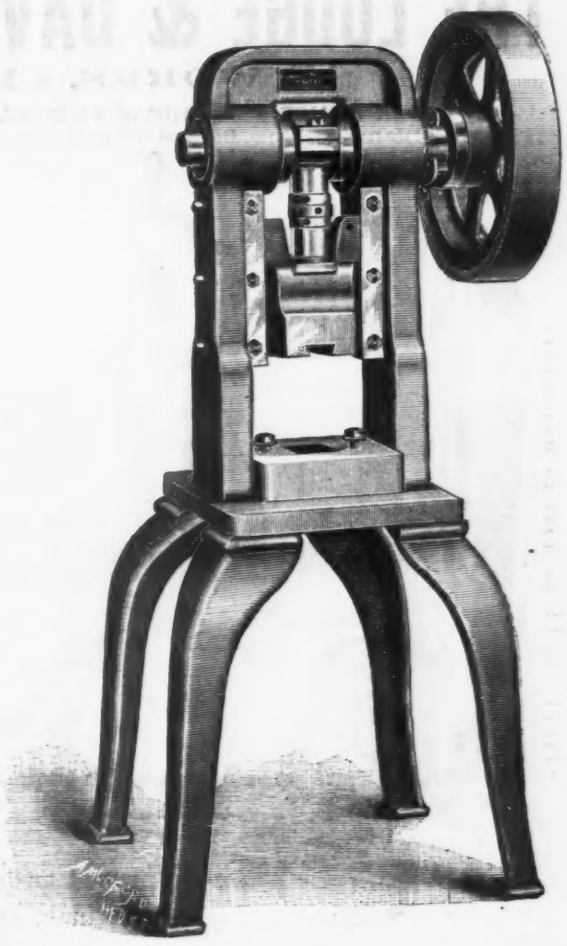

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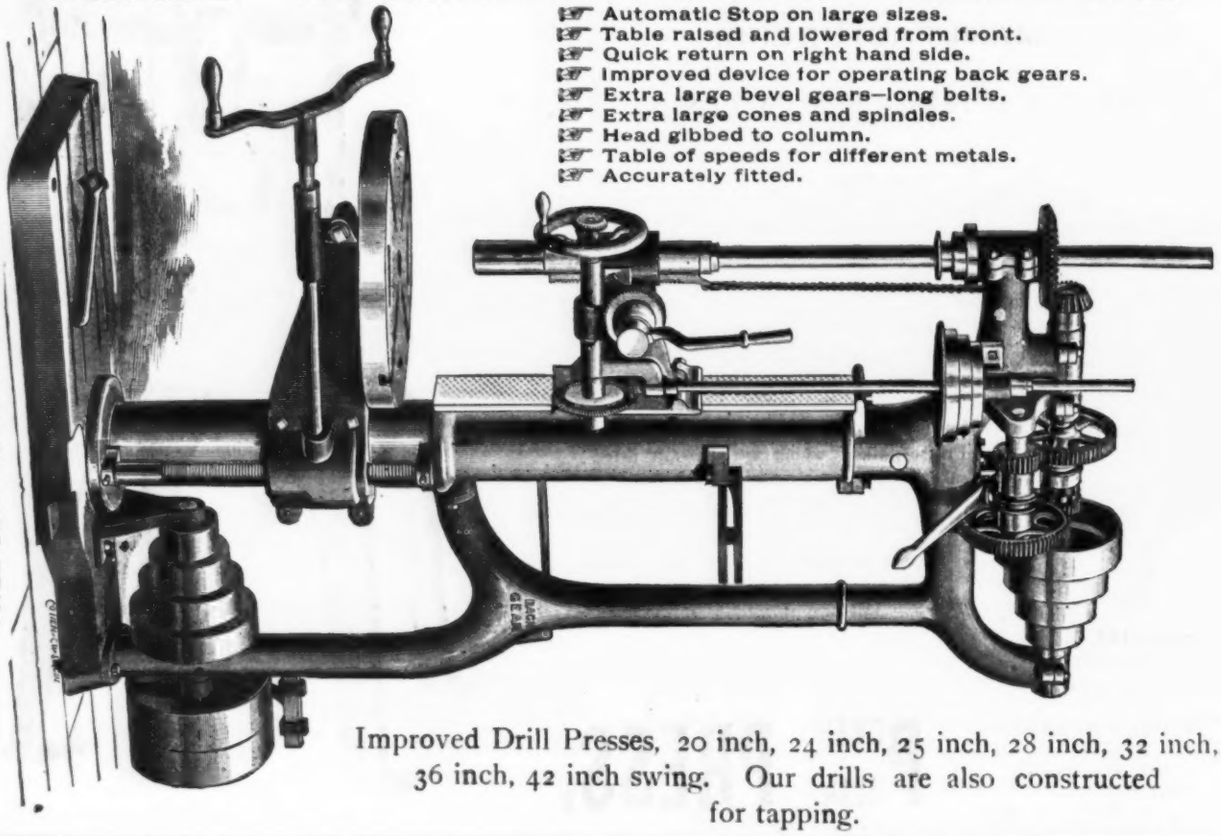

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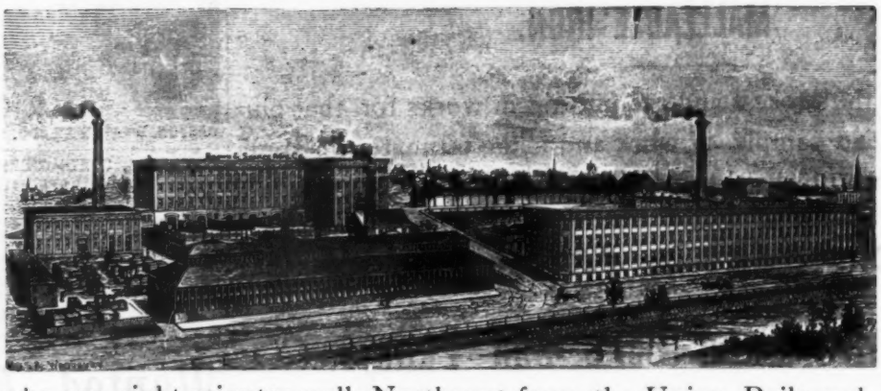

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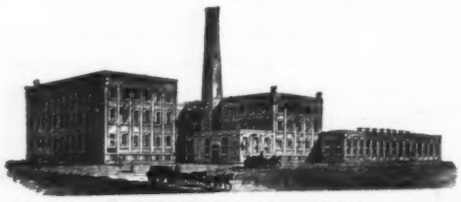

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Engine Lathes, 10 in. x 4 ft.; 11 in. x 5 ft.; 12 in. x 5 and 6 ft.; 14 in. x 5, 6 and 8 ft.; 15 in. x 6 and 8 ft.; 16 in. x 6, 8, 10 and 12 ft.; 18 in. x 8, 10 and 12 ft.; 20 in. and 22 in. x 6, 8, 10, 12, 14 and 16 ft.; 24 in. x 8, 10, 12, 14, 16 and 18 ft.; 28 in. x 10, 12, 14 and 16 ft.; 30 in. x 12, 14, 16, 18 and 20 ft.; 42 in x 22 ft.; 48 in. x 18 ft.; 62 in. x 22 ft., triple geared; 50 in. x 36 ft., triple geared; 60 in. x 23 ft., triple geared, 88 in. x 31 ft. and 96 in. x 20 ft., Triple geared.

Taper Engine Lathes, 14, 16 and 18 in. x 6, 8, 10, 12 ft.; 20, 24, 28, 30 in. x 10, 12, 16 and 20 ft.

Square Arbor Fox Lathes, 14 in. x 5 ft.; 15 in. x 6 ft; 18 in. x 6.

Fox Monitor Lathes, 14 in. x 6 ft.; 15 in. x 6 ft.; 16 in. x 6 ft., 18 x 6.

No. 3, 4, 5 and 6 Windsor Aut. Turret Lathes.
No. 1, 2, 3, 4 Wire feed Screw Machines.
No. 3, 4, 5, 6 Power feed " "
No. 5 and 6 " " " " clutch back gear.

20, 22, 24, 28, 30, 32, 36, 38, 40 and 45 in. Drill Presses.

Crank Shapers, 6 in., 8 in., 10 in., 12 in., 15 in., 16 in., 17 in., 20 in., 24 in., 28 in., adjustable stroke.

Friction Shapers. 15, 16, 20, 22, 30, 32 in.

Iron Planers, 16 in. x 16 in. x 3 ft.; 20 in. x 20 in. x 4 ft.; 24 in. x 24 in. x 6 ft. and 8 ft.; 30 in. x 30 in. x 6, 8, 10 and 12 ft.; 36 in. x 36 in. x 12 ft.; 44 in. x 48 in. x 22 ft. 6 in.; 52 in. x 50 in. x 17 ft.; 72 in. x 60 in. x 15 ft. and 60 in. x 49 in. x 24 ft.

C, D and E Horizontal Boring Machines, Newark Machine Tool Co.

50 in. Single Head Boring and Turning Mill.
72 in. Bickford Boring Mill, 2 heads.
72 in. Vertical Boring Mill, second-hand.
60 in. Vertical Boring Mill. Second-hand. L. W. Pond.

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115 Liberty Street, New York.
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Planer, modern, almost new.	27 x 25 x 7 ft.		$450.00
" " " "	22 x 20 x 4½ ft.		350.00
Lathe " " "	33 x 18 ft.		650.00
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Finest 18 in. x 10 ft. Lathe made. New.			300.00
34 in. Barnes' Drill, Bk. Gd., Sf. Feed. New.			275.00
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Engines, Boilers, Pumps, Shafting, Machinery, &c.

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SECOND-HAND

MACHINISTS' TOOLS.

1 Planer, planes 16 ft. long, 62 in. x 62 in.
1 Planer, planes 5 ft. 24 in. x 24 in.
1 Planer, planes 6 ft. 32 in. x 28 in.
1 Engine Lathe, 16 ft. bed, 84 in. swing, for Boring and Turning.
1 Engine Lathe, 16 ft. bed, 28 in. swing.
1 Engine Lathe, 5 ft. bed, 14 in. swing.
1 Engine Lathe, 6 ft bed, 13 in. swing.
1 Engine Lathe 10 ft. bed, 25 in. swing, raised to 32 in
1 Engine Lathe, 10 ft. bed, 28 in. swing. Ames make.
4 Geared Common Automatic Milling Machines.
1 36 in. Back Geared Drill.
1 Rack Cutting Machine, cuts 12 in. wide, 48 in. long.
1 400-lb. Beaudry Cushion Hammer.
1 475 lbs. Power Drop Hammer.
1 Bar Iron Geared Shears, cuts 4 in. x 1¼ in.
And various other tools.

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Planers and Matchers, Daniels, Dimension, Pony and Hand Planers, Molding, Mortising, Tenoning and Shaping Machines, Band, Scroll and Swing Saws, Rip and Cut-off Saw Tables, Boring Machines, Engine, Hand and Foot Lathes, Planing, Milling and Drilling Machines, Power, Screw, Hand, Foot and Drop Presses, Jewelers Rolls, &c., &c. Shafting, Hangers, Pulleys and Belting. Machinery taken on storage and sold on commission. 398 Madison Street, New York.

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Russell Automatic Engine 11 in. x 16 in.
Porter and Allen Automatic Engine 12 in. x 20 in.
Phœnix Automatic Engine 10 in. x 12 in.
Phœnix Automatic Engine 15 in. x 16 in.

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N. B. A number of these tools have been sold, other sales are pending. Order promptly or repent.

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15 in. x 4 ft. Engine Lathe, screw back, double T rest.
15 in. x 6 ft. Engine Lathe, screw back, gauge attachment.
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16 in. x 5 ft. Engine Lathe, screw and rod front, plain rest.
16 in. x 10 ft. Engine Lathe, screw and rod front, compound rest.
16½ in. x 6 ft. Engine Lathe, screw front, compound rest
17 in x 7 ft. Engine Lathe, screw back, plain rest.
17 in x 6 ft. Engine Lathe, screw front, double T rest.
17 in. x 8 ft. Engine Lathe, screw front, double T rest, milling attachment.
17⅛ in. x 4 ft. Engine Lathe, screw back, double T rest.
17⅛ in. x 8 ft. Engine Lathe, screw front, elevating block.
17⅛ in x 8 ft. Engine Lathe, screw front, double T rest.
18 in. x 6 in. Engine Lathe, screw and rod front, plain rest.
19 in. x 8 ft. Engine Lathe, screw front, compound rest.
19 in. x 10 ft. Engine Lathe, screw back, compound rest.
20 in. x 7 ft. Engine Lathe, no screw, plain block.
21 in x 10 ft. Engine Lathe, screw front, compound rest.
21¼ in. x 8 ft. Engine Lathe, screw back, double T rest.
21¼ in. x 10 ft. Engine Lathe, screw front, double T rest.
21½ in. x 10 ft. Engine Lathe, screw front, compound rest.
21¾ in. x 10 ft. Engine Lathe, screw front, compound rest.
22 in. x 10 ft. Engine Lathe, screw back, double T rest cross feed.
22 in. x 16 ft. Engine Lathe, screw front, double T rest.
25 in. x 14 ft. Engine Lathe, screw front, compound rest.
26 in. x 12 ft. Engine Lathe, screw front, compound rest.
26½ in. x 10 ft. Engine Lathe, screw front, compound rest.
29 in. x 28 ft. Engine Lathe, screw front, compound rest, 3-tool rest, No. 1 shaft straightener, 3 in. hole through spindle.
35 in. x 14 ft. Engine Lathe, screw front, compound rest.
24 in. x 8 ft. Chuck Lathe, turret head, seven 1¾ holes with 12 in. diam. 3-jaw combination chuck.
13 in x 6 ft. Hand Lathe.
13 in. x 7 ft. Lathe (Hand).
16 in. x 8 ft. Hand Lathe.
20 in. x 12 ft. Hand Lathe.
20 in. x 16 ft. Hand Lathe.
No. 1 Upright Drill.
No. 1 Upright Drill.
No. 2 Upright Drill.
No. 3 Upright Drill.
Radial Drill, 6 ft. arm, plain top table.
Horizontal Boring Mill.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
25 in. x 25 in. x 8 ft. Planer.
36 in. x 36 in. x 14 ft. Planer.
48 in. x 48 in. x 12 ft. Planer.
42 in. x 42 in. x 20 ft. Planer.
60 in. x 50 in. x 24 ft. Planer, with two heads on cross beam.
No 0 Shaper, with chuck and centers.
No. 1 Shaper, with chuck and centers.
36 in. Gear Cutter,

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Successors to H. B. Smith Machine Co., Phila.

WE HAVE IN STOCK

Two Standard Gauge Locomotives.
One 7 in. x 12 in. Saddle Tank, 3 ft. gauge Locomotive.
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Hoisting and Stationary Engines.
Ore Pans, Crushers, and Rolling Mill Machinery.

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PROMPT DELIVERY.

1 50 in. and 1 80 in. Radial Drill. New.
1 25 in. x 10 ft. Screw Cutting Eng. Lathe. 2d Hnd.
1 25 in. x 22 ft. " " " " "
1 42 in. x 17 ft. " " " " "
1 16 in. x 6 ft. " " " " "
1 20 in. x 8 ft. " " " " New.
1 21 in. x 12 ft. " " " "
2 21 in. x 10 ft. " " " "

Special prices. Address

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FOR SALE CHEAP.

1 15 H.-P. Double Cylinder, Double Friction Drum Horizontal Hoisting Engine, with Boiler complete. New.
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1 Power Chain Hoist, with Heavy Chain, complete.

Send for complete list of Machinery for prompt delivery.

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1 18 in. x 8 ft. Worcester, Rod Feed, Plain Rest. Good order.
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1 22 in x 22 in. x 5 ft N. Y. S. E. Co. A1 condition.
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1 20 in. Wheel Feed Quick Return. Good order.
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1 4-Spindle Pratt & Whitney Elevating Table.

These Drills are in A1 condition.

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2 Jones & Lamson's Small Screw Machines, wire feed. A1 condition.
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2 No. 1 Garvin W. F. Screw Machines Good as new,
1 No. 2 Brown Sharpe plain Millers. Good as new.
1 No. 2 Garvin Plain Miller. A condition.
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Power Presses, Screw Slotters, Tapping Machines.
Write for list of 400 new and second-hand Machines ready for delivery.

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30 in. x 60 in. Corliss Engine, built by Corliss Steam Engine Works, Providence, R. I., with attached air pump, new wheel to suit, and one 23 in. x 60 in., with 20-ft. segment wheel. Both in first-class condition. Now running in Mt. Vernon Mills, Baltimore, Md. Address,

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WANTED.

A modern first-class, second-hand Horizontal Engine, 40 to 60 H.-P., spot cash.

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Special Slab Miller; will take 24 inches between bearings and 8 feet long. Price $650.00.

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BARGAINS FOR CASH.

Write for Prices.

1 32 in. Lathe, 5 ft. bed.
1 24 in. Lathe, 10 ft. bed.
1 24 x 24 x 7 ft. Planer.
1 20 in. Drill.
1 24 in. "
1 16 x 36 Horizontal Engine. Second-hand.
1 12½ x 24 " " "
1 8 x 16 " " "
1 24 in. x 12 ft. Lathe. New.
1 12 x 12 Vertical Engine.
1 28 in. Lathe 15½ ft. bed.
1 14 in. Lathe, 6 ft. bed.
1 54 in. x 14 ft. Horizontal Boiler. New.
1 44 in. x 12 ft. " " "
2 42 in. x 11 ft. " Boilers "
1 22 in. Niles Drill Press.
16 in. x 24 Atlas Engine. New.
18 in. x 24 " " "
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1 15 H.-P. Shapely " " "
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Vertical Boilers and Engines. Second-hand.
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1 15 in. x 6 ft. Porter Lathe. New.
1 Set Boiler makers' Rolls, 8 ft. 3 in. between housings.
1 " " " " 7 ft. " "

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One Sellers single head Driving Wheel Lathe, 78 in. swing, 15½ ft. bed. Fine condition.

One Putnam Screw Cutting Engine Lathe, 36 in. swing, 12 ft. bed. A modern tool and in very fine order.

One Iron Planer, to plane 40 in. wide, 36 in. high, 6 ft long.

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1 Hor. Corliss Engine, 23 in. x 48 in.
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1 " Fitchburg Landing Mch. Co. Engine, 16 in. x 30 in.
1 Locomotive, 8 in Cylinders.
1 Dredging Machine with Engine and Boiler.
Several Hoisting Engines. Boilers to suit.
For prices and particulars, write to
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50 Horse-Power!

IT IS A SECOND-HAND ENGINE,

Cylinder 11 in., Stroke 30 in., **rates at 65 Revolutions.** Fly-wheel, 9 ft. diameter, 18 in. face. Weight complete about 11 tons. **Made by C. H. Brown & Co.**

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35 lbs. to the yard, also **Centre Bearing Steel Street Rails,** all fit to relay and in lots to suit. Apply to

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96 in. swing, 26 ft. Bed, Heads raised to swing 13 ft. A1
78 in. " 17 ft. " Screw Feed. Good.
50 in. " 30 ft. " For Rolling Mill Forgings. New
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28 in. " 12-14-16-18 ft. " "
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14 in. " 6 ft. " " "
15, 18 and 25 in. stroke. Crank Shapers, Steptoe. New.
20, 26 and 30 in. " Geared " "
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24 in. x 4 ft.-5ft.-6 ft. Planers.
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54 in x 42 in. x 24½ ft. "
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120 in x 120 in. x 16 ft. " Betts, 2 heads.
100 H.-P Westinghouse Standard Engine.
11 x 18 Horizontal Slide Valve Engine.

2000 lb. Bement Steam Hammer.

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Ingersoll-Sergeant Air Compressors.

1 14 in. x 18 in., Latest Improved Piston Inlet, used ten weeks.
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These Compressors with or without drills, receivers, &c.
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1 20 in. 3 high Muck Train. Fine order.
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2 100 H.-P. Locomotive Boilers.
All for prompt sale.

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Squaring Shears, 42, 48, 66 and 120 inches.
Power Punches, L. & A., Nos. 2 and 3 Very good.
1 Double Punch and Shear, punches 1½ x 1 in. Very good.
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3 Long & Allstatter Helve Hammers, 40, 60 and 80 lbs.
Gas and Gasoline Engines, 4, 7, 9 and 15 H.-P.
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Engine Lathes, 40 x 22, 50 x 14, 26 x 20, 20 x 10.
Planers, 12 ft. x 5 ft. x 16 ft., 42 in. x 10 ft., 32 in. x 8 ft.
Drop Hammers, 700 and 1000 lbs.
New Upsetter and Header, upsets on end or any point on rod, made for ¾ rods and smaller. Send for circulars.
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Write me before purchasing.
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Several carloads of good, clean, Cast Iron Borings, Wrought Iron Turnings and strictly No 1 Wrought Iron Scrap. Correspondence solicited.

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We have in stock several sizes of
UNIVERSAL RADIAL

DRILLING MACHINES

Price $450 up,
That we wish to dispose of. Address

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BAKER BLOWERS,
Nos. 1, 3, 4½, 5 and 5½.
ROOT BLOWERS,
Nos. 1, 2, 3, 4 and 5.
Sturtevant Blowers, Nos. 6, 7, 8 and 9.
7 H.-P. Otto Gas Engine equal to new.
2 12 H.-P., 2 15 H.-P. and 1 20 H.-P. brand **New Horizontal Boilers** 5 in all, for an immediate buyer $600 spot cash. If you are buying anything in the machinery line send me list of your wants. S. R. BIGELOW, Machinery Expert and Appraiser, 45 Dey St., New York

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12 Hopper Gondola Standard Gauge Cars, 50 000 lbs. capacity.
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One No. 3 Garvin Universal Milling Machine, complete.
One 9 x 12 Straight Line Engine, first-class order. Can be seen running. To be removed for one of more power.

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BESSEMER PIG IRON

3000 tons No. 1 bessemer.
500 tons Ferro-Silicon.
For immediate delivery.

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FEED-WATER HEATERS.

FEED-WATER HEATERS BOUGHT, SOLD OR EXCHANGED.

State what you want and see if we can supply you either on new or second-hand.

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A Tack and Small Nail Factory, consisting of ten Reed Machines with automatic feeders; six Blanchards; two Wire Nail Machines, one large, one small; two Double-Point Tack Machines; one Glazier-Point Machine; one Heel Nail Machine; one Chopper, 30-inch knives; one Slitter; two Tumblers; two Grindstones; Engine Lathe, 15-inch swing; Drill Press, 20-in. swing. Also all shafting, pulleys, belting and necessary appliances for running the plant. Located within 100 yards of a rolling mill that will furnish material very low. This machinery is practically new. Patterns for each machine. The whole will be sold at a very low price.

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We are prepared to furnish on short notice Steel Rails cut to any length.

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FOR IMMEDIATE DELIVERY.

One three-ton Ridgway direct acting steam Crane; reason for selling, work beyond its capacity. Can be seen in use at works of

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The patents and machinery for making Corrugated barbed Ribbon Fencing. Machinery in first-class order, will put on 120 barbs per minute. Everything in good shape.

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Large lot of Loco. Boilers,
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Can furnish stacks, grates and all fittings to suit purchasers.

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FOR SALE.
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Street Rails

FIT TO RELAY.

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Nest of 3 Double Deck Boilers, double riveted, good order, cheap. 4 Iron Tanks, 8 ft. diameter, 30 ft. long, good order, 11,000 gal. capacity, cheap. 2 Cylinder Boilers, 30 in. diameter, 40 ft. long. 80 H.-P. Locomotive Boiler, 80 lbs pressure, good order. Iron Tanks all sizes. Shells for stacks. Scrap Iron and Metals.

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CRANK and GEARED SHAPERS.

Write us for Bargains.

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PUMPS, ENGINES AND MACHINERY.

2 No. 5 New Pulsometer Pumps and Fittings $100
2 No. 9 " " " " 350
Gas Engine, $90. Water Motors ..... $25 and 60
3 x 2 x 3 Worthington Duplex Pump, A1.. 50
7 x 4 x 9 Woodward Pump. Complete order..... 100
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Engines 4 x 5, $8; 5 x 6, $95; 6 x 6, $110; 6 x 8... 135
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We buy, sell, exchange and repair most anything.

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A number of large Cog Wheels, Cast Iron Shafts and Bed Plates of Engines, cheap. Address

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AS BUYER for mill or mine or assistant to purchasing agent of railroad, by young man of considerable experience. Address "J. A. E.," Box 630, office of *The Iron Age*, 96-102 Reade St., New York.

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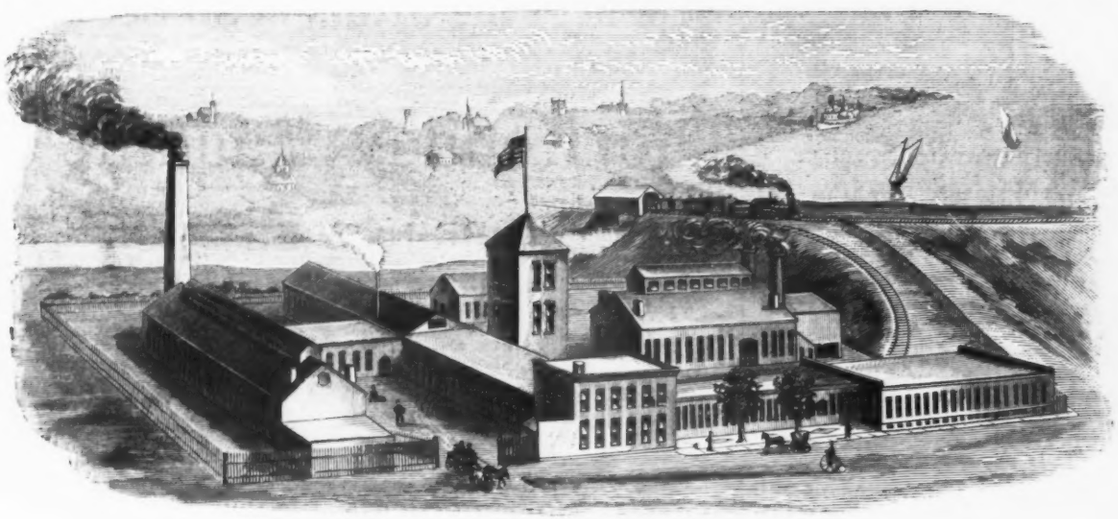

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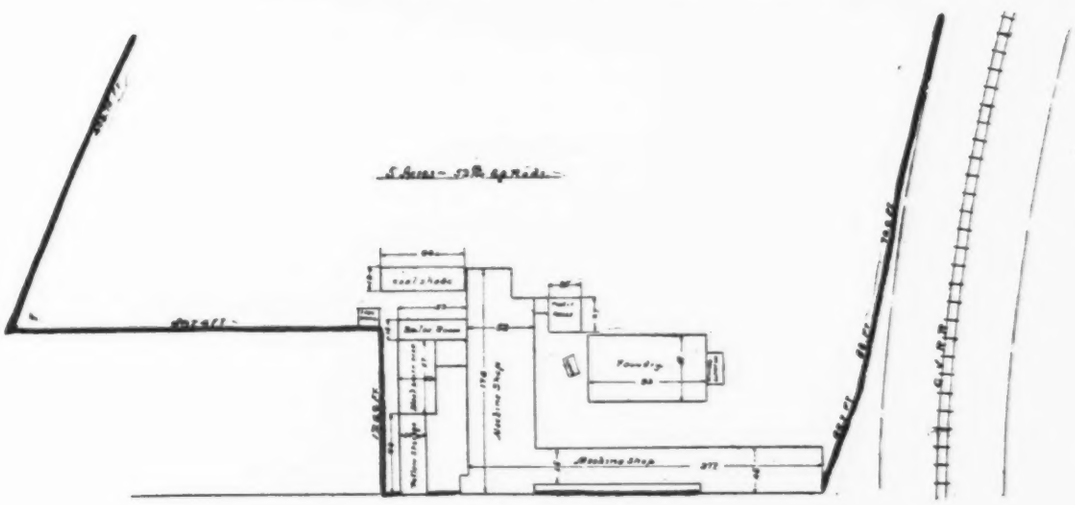

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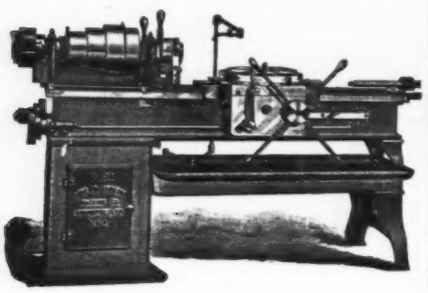

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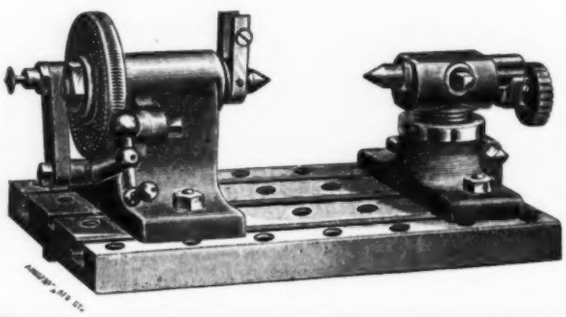

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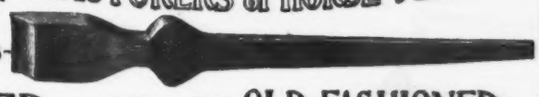

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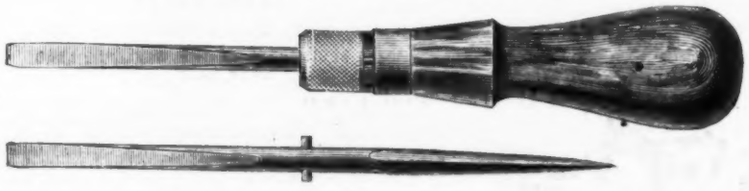

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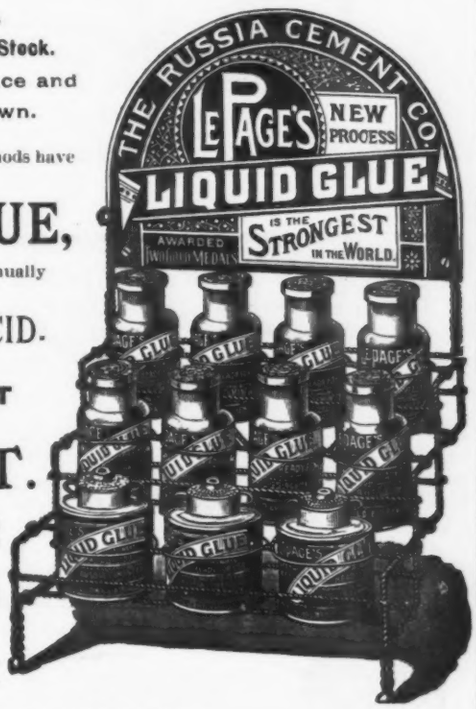

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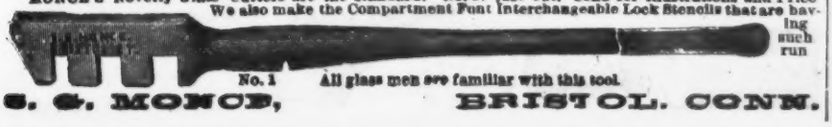

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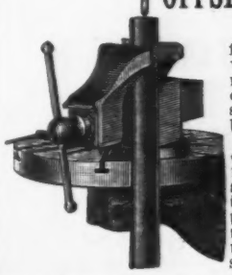

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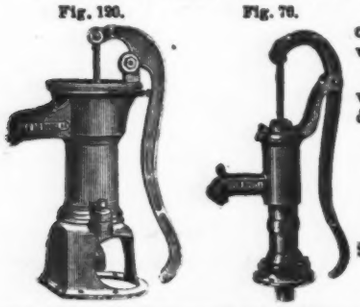

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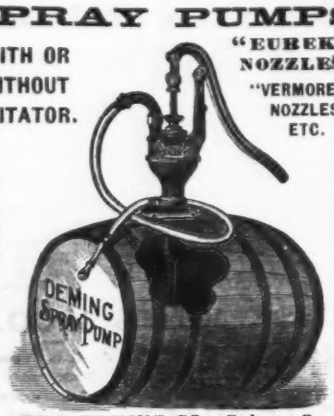

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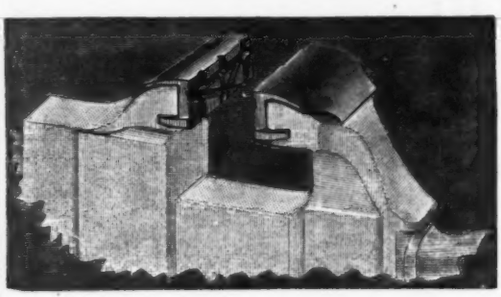

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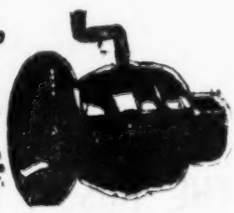

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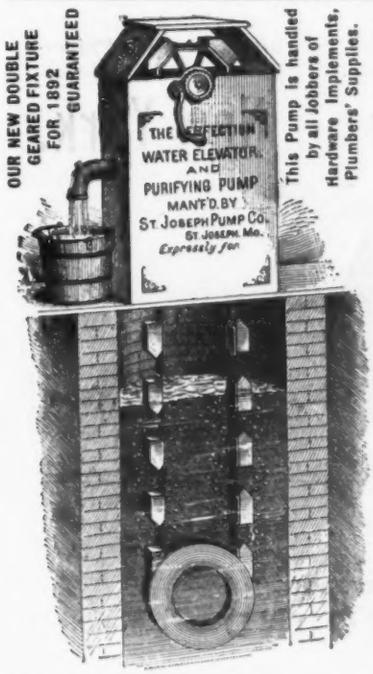

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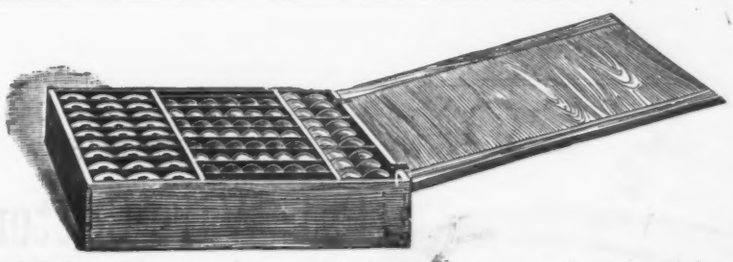

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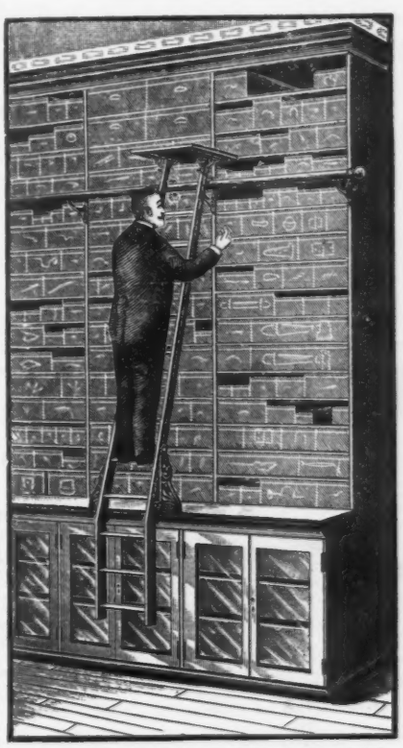

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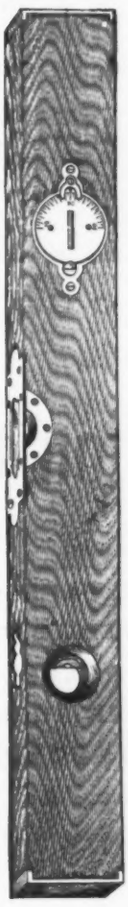

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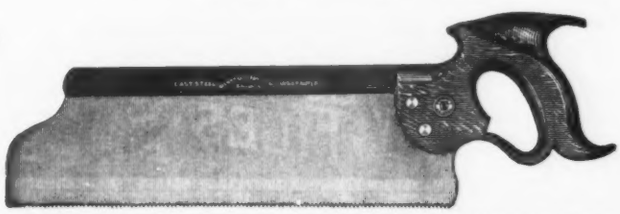

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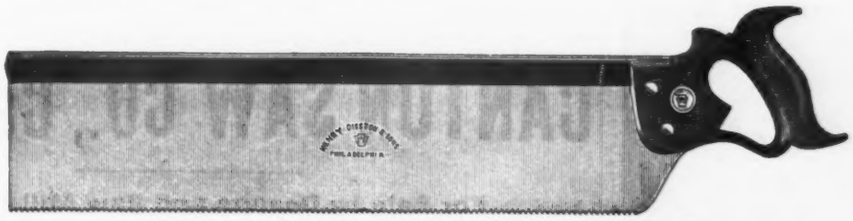

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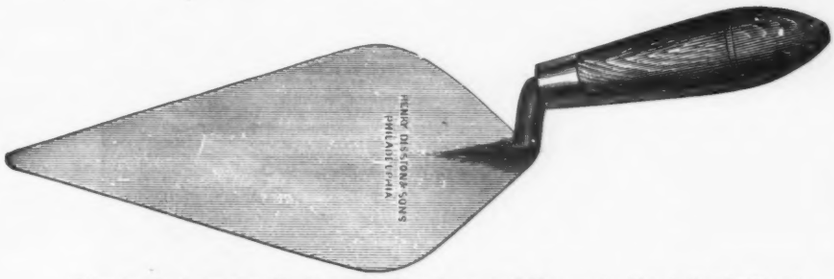

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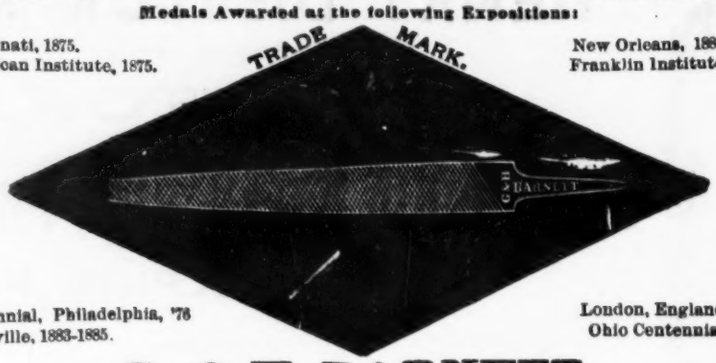

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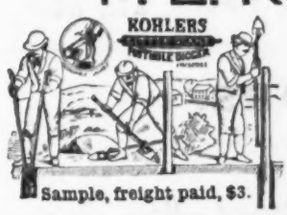

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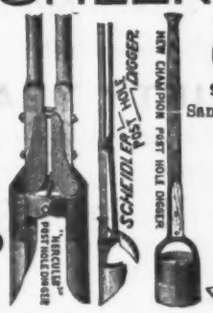

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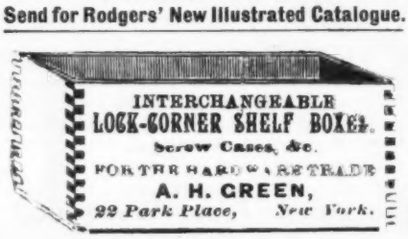

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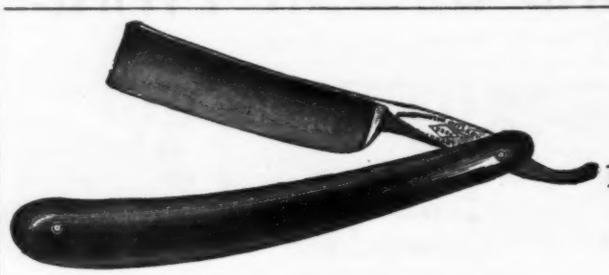

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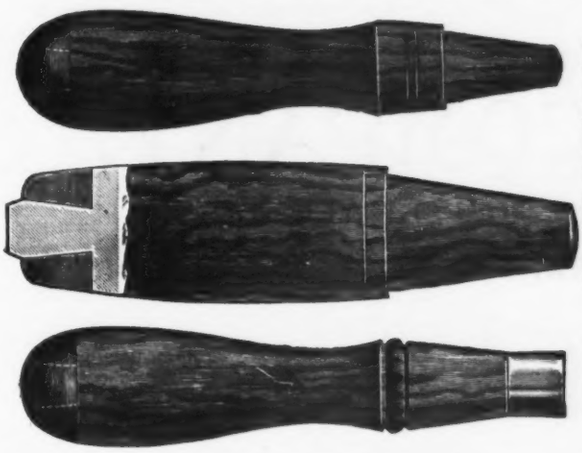

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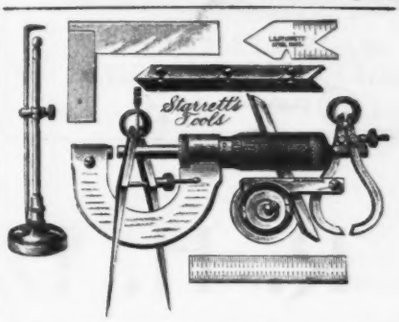

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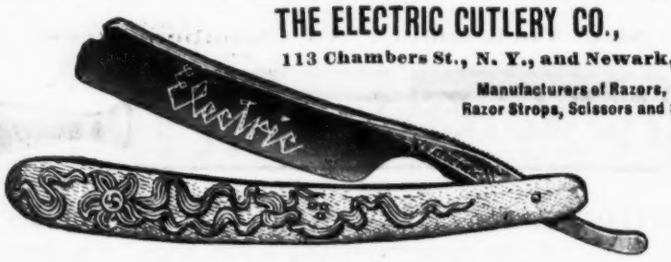

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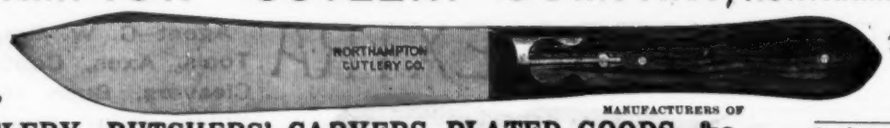

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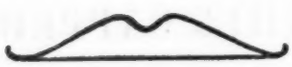

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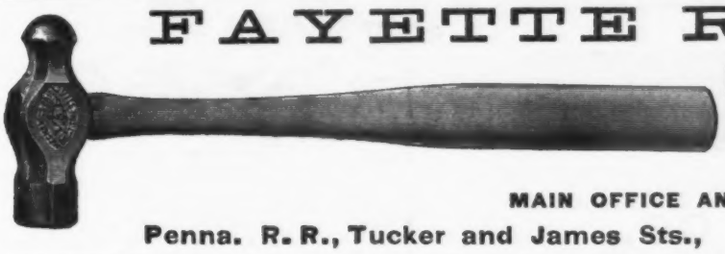

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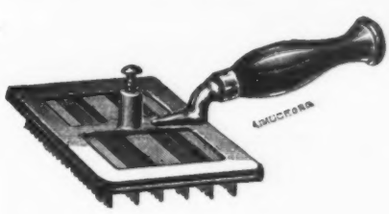

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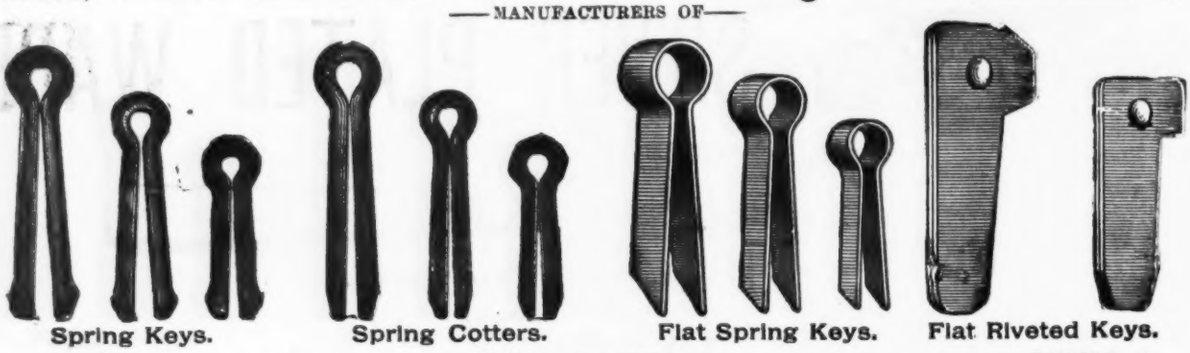

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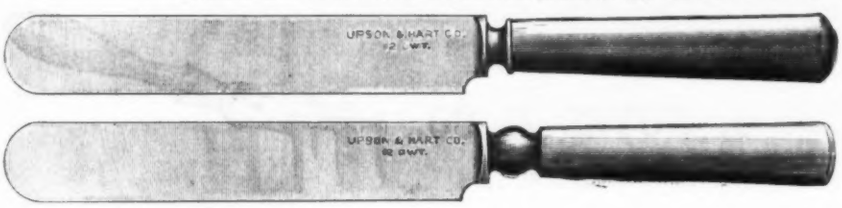

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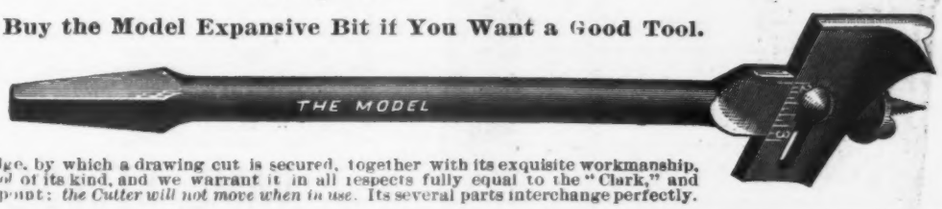

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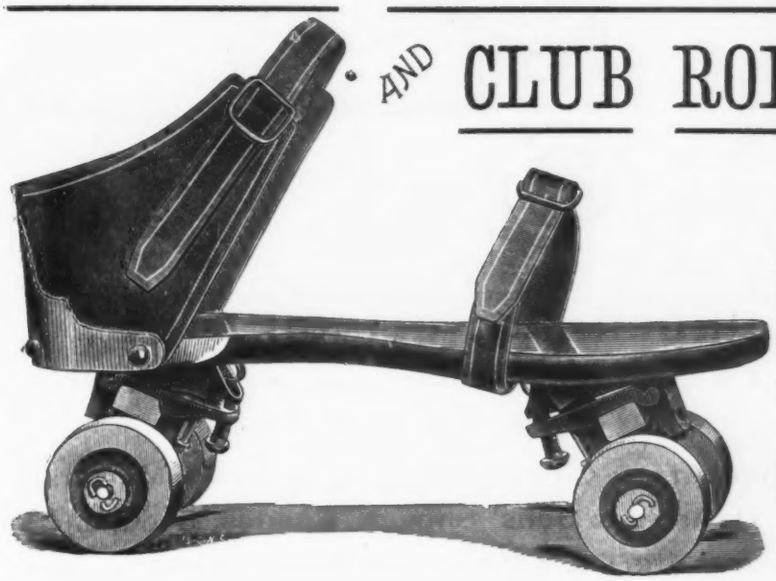

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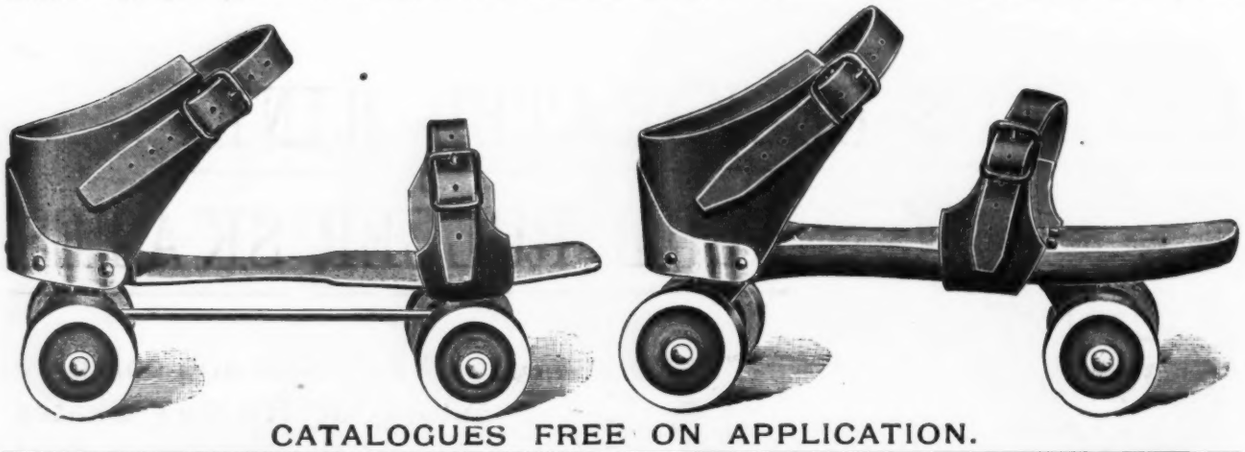

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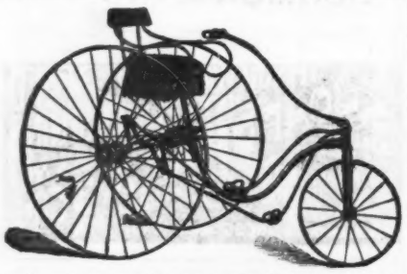

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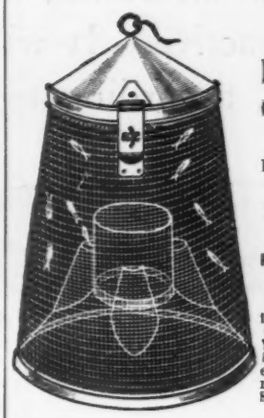

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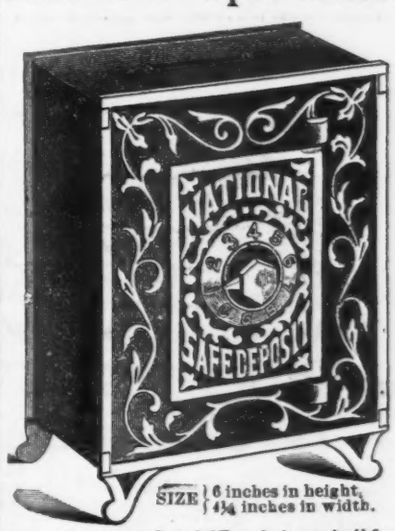

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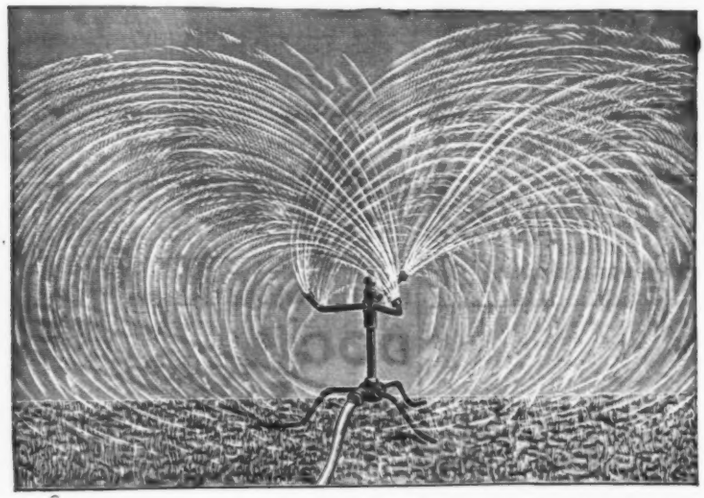

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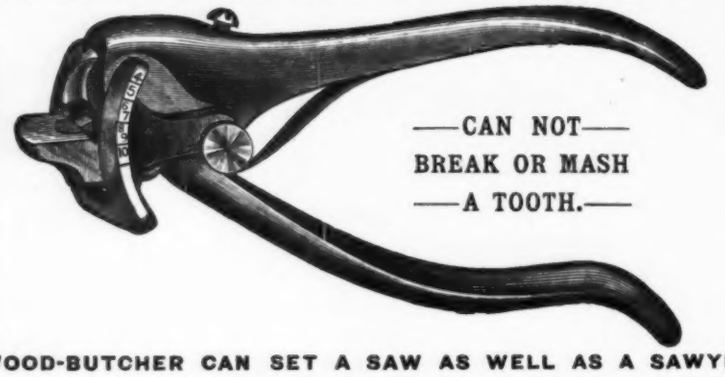

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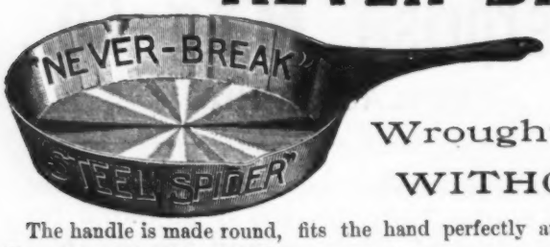

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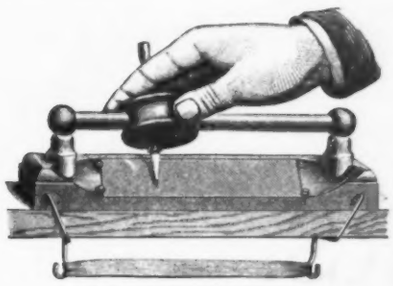

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The above cut shows the Pointer attached to the edge of a table and shows how to take hold of the carriage in using. The pencil revolves as it is moved along on the surface of a file, which is especially made for the purpose. The entire simplicity of the whole machine makes it little liable to get out of order. By use of the clamps it can be instantly attached to desk or table, and as quickly removed, or can be used when held in the hand. The material and workmanship are the best and **EVERY MACHINE FULLY WARRANTED.**

H. S. OSGOOD, Supt. American Express Co., Portland, Me., says:
We have had one of your Pencil Pointers in use for several months, and it has done its work rapidly and well. We never saw a pencil sharpener before that would sharpen a pencil. Yours will do it every time and do it well.

SELLERSVILLE NATIONAL BANK, Sellersville, Pa.
It suits me and does all that you represent.
C. R. ALTHOUSE, Cashier.

FIRST NATIONAL BANK, Watkins, N. Y.
This is the best thing of the kind I ever saw. One cannot break the lead while sharpening.

CANON CITY, COLORADO.
Your Perfect Pencil Pointer came to hand, and after a thorough trial proves to us that it is rightly named for it is "perfect" in every particular. We would not be without it for double the price.
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Make Money by Using this Machine.

You can get them of your stationer, or to introduce WE WILL SEND SAMPLE, EXPRESS PAID, on receipt of $1.25.

GOODELL CO., Manufacturers Antrim, N. H.

IDEAS FOR HARDWARE MERCHANTS.

By D. T. MALLETT.

CONTENTS: Starting a Hardware Store; What Hardware Dealers may Sell; Hints about Inventory; Behind the Desk; Ratio of Expenses to Sales; Retail Advertising; System in the Store; The Use of a Store Window; The Holiday Trade in Hardware; John Jones, Jr.; The Successful Merchant; Parable of a Foolish Trader; Cordiality Between Competitors; Commercial Value of a Smile; More about Advertising; Business Education; Fable of the Magnet; Why One Merchant Failed; The Other Half; Cash or Credit; Don't Get Into a Rut; The Value of Price Lists; A Store Library; Books for Hardware Men; Advertisements of Leading Manufacturers.

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Makes clean lawns possible with very little labor. It accomplishes more in an hour than can be done in a day by any other means. Everyperson having charge of a grass plot wants one.
It is a Weed Eradicator.
ORDER EARLY.

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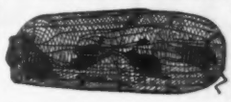

catches from *ten to thirty* rats in one night; one man reports *six hundred* in eighteen days; another *eighty* in twenty-four hours. Beware of imitations, get the genuine "*Marty*" trap, see that my name is on each trap before buying. A great seller and pays a good profit. Write for prices to **A. W. PAINE,** 20 Dock Square Boston, Mass.

BRANFORD LOCK WORKS.

The Yale & Towne Mfg. Company, Lessee.

THE TRADE

is hereby informed that on and after July 1, 1892, the products and business of the BRANFORD LOCK WORKS will be controlled and handled by THE YALE & TOWNE MANUFACTURING COMPANY, under the terms of a contract recently executed.

CUSTOMERS,

especially those of the BRANFORD LOCK WORKS, are informed that hereafter full lines of Branford goods will be carried in stock at the branch houses of

The Yale & Towne Mfg. Co.

IN

NEW YORK, CHICAGO, PHILADELPHIA and BOSTON.

Orders of the larger kinds will be filled directly from the Branford Works, especial care being given to correct and prompt deliveries. Smaller assorted orders will be filled from our stocks, as above.

We hope to retain all previous customers of the BRANFORD LOCK WORKS, and to interest our other customers in these goods, which have heretofore borne an excellent reputation, the character of which it is intended shall be fully maintained.

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MANUFACTURERS OF

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HARDWARE.

"VASSAR"
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LOCKS and LATCHES.

WINDSOR DESIGN.

We Make Complete Lines
OF
PUSH BUTTONS
IN A VARIETY OF DESIGNS.

All Our Push Buttons
HAVE
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HARD RUBBER BACKS.

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HARDWARE PRICE BOOKS.

Arranged by R. R. WILLIAMS, Hardware Editor of the Iron Age.

These Books are printed on paper of superior quality and bound in grain seal leather.

Columns are provided for the name and number or size, for noting from whom purchased, date of quotation or purchase, list and discount, and for entering freight expenses as an element of cost. Under the heading of selling prices, the regular and any special price or remarks in regard to the goods are given place. This book goes into considerable detail in describing the goods and cost prices. It has been arranged in accordance with the views of many Hardwaremen whose methods are careful and exact.

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FOUR EDITIONS:

A, 200 pages,	$1.00
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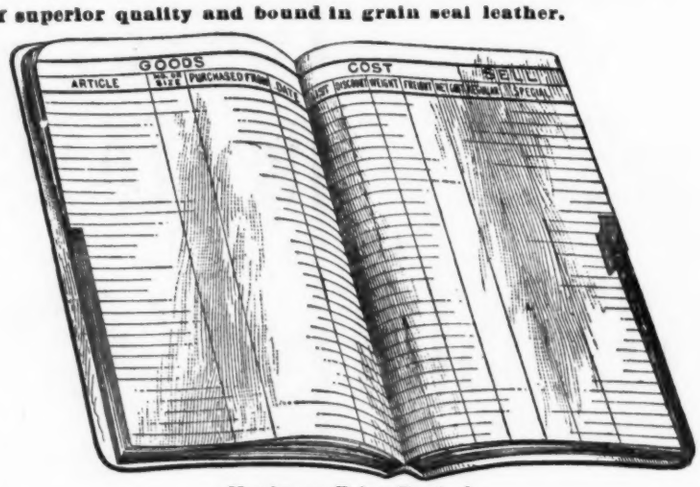
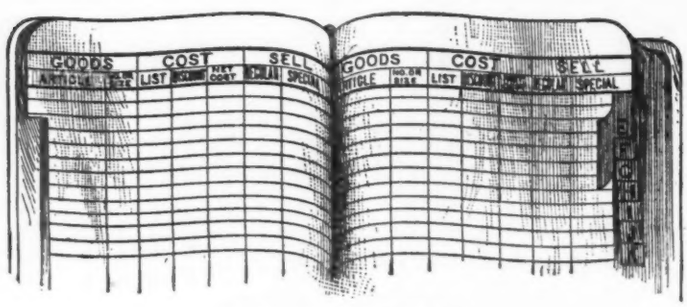


Hardware Price Book A.



Hardware Price Book B.

In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

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The headings in Book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in Book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price, and also for any remarks in regard to cost of the goods, desirability of pushing them, or other matters.

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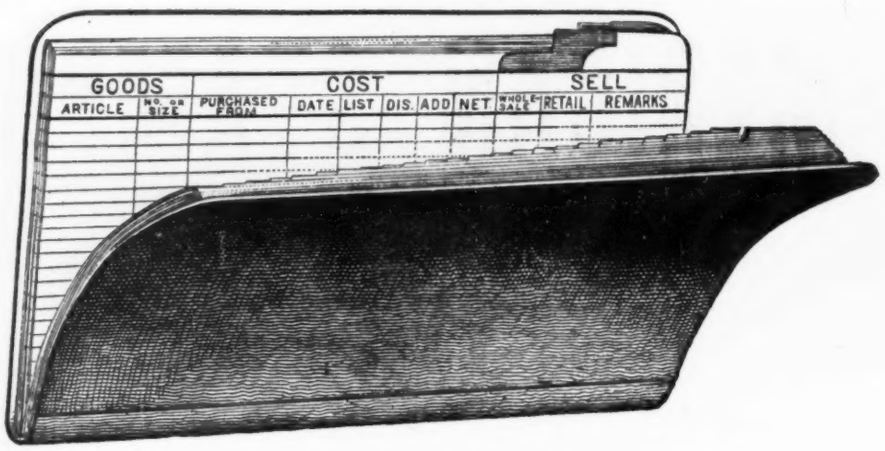

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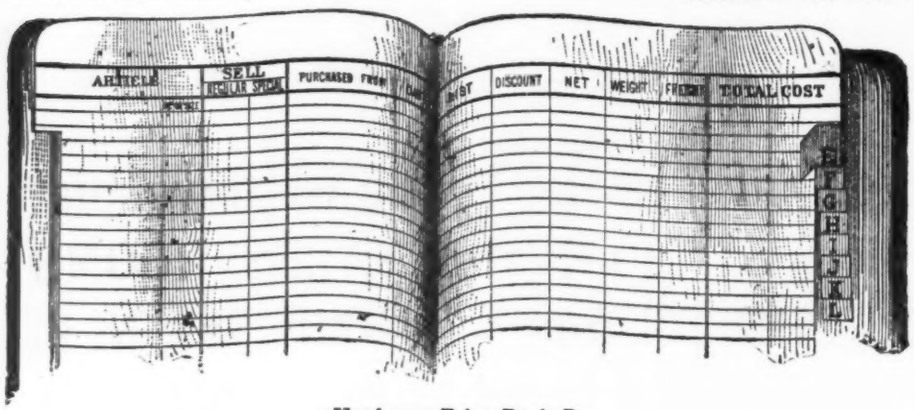

Hardware Price Book D.

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This arrangement is adapted to the requirements of the trade in this direction.

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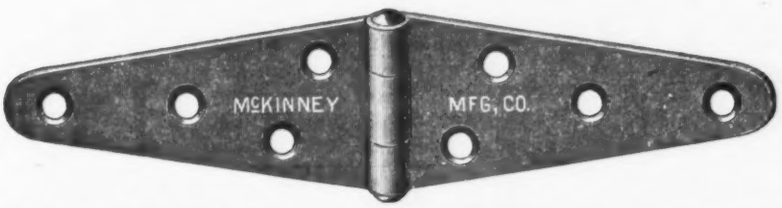

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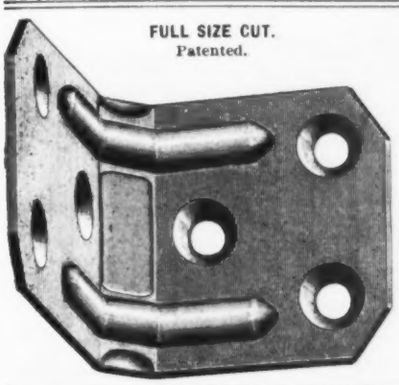
"NONE BETTER."

FULL SIZE CUT.
Patented.



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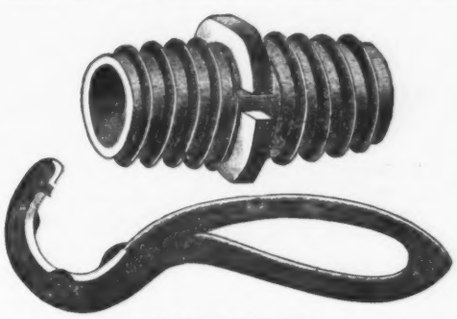
½ doz. Menders and one wrench in box. One gross (24 boxes) in a case.



The only Practical Hose Mender Made.

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PARAGON BOX OPENER.

This is a Practical, Convenient and useful Tool. A Box Opener, Nail Puller and Nail Driver. Made of Steel, well tempered and strong. Endorsed by all who have used it, and proves a ready seller. **Price, Each, 75 Cents.**

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The **Best** and most **Practical** substitute for weights invented. The most **Durable**, the **Cheapest** and best device for all **ordinary windows.** Balances when in position are out of sight. No rivets, bolts or screws are used in putting it together, so that nothing can get out of order or need repairing. No cutting, boring or marring the sash, as the Balances are let into the jamb.

Manufacturers of Sash Balances, Sash Locks, Sash Lifts, Monitor Sad Irons.

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ESTABLISHED 1845.

The annexed cut shows one of the many styles of Coffee Mills of our manufacture, especially adapted to Grocers' use and all retailers of coffee. They are highly ornamental and workmanship of the very best. We make more than 30 styles.

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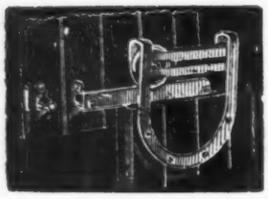

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The most perfect Anti-Friction Hanger in the Market, because

It is made of steel throughout, except the wheel, which has a steel axle. It will not break. It is practically free from wear. It is almost noiseless in action. It requires no oil. It has a broad bearing on the door, and keeps in line. It is by far the most durable. It may be used with any track. It is always in order. **LANE'S PATENT TRACK** is made of steel and is easily put in position. Catches and holds no snow or ice. Door hung thereon cannot jump the track. Is not subject to decay. Requires no fitting, but is ready at once. May be used with hangers of other manufacture. Send for circulars.

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BRONZE PLATED.

Kenton
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We are now making, in addition to our regular goods, a line of Bronze Plated Butts for which we have already orders amounting to 40,000 pair. Don't you want some?

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KEYSTONE LOCK WORKS,

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E. T. FRAIM, Lancaster, Pa., U. S. A.

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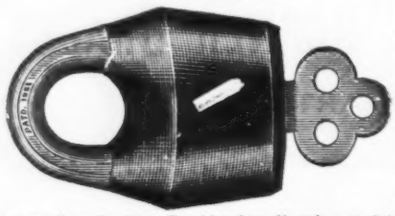

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Sole Mfrs. of

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Most secure, and finely finished Padlock made, and of Lancaster Drive Sash Pulleys, best and cheapest Sash-Pulleys on the market.

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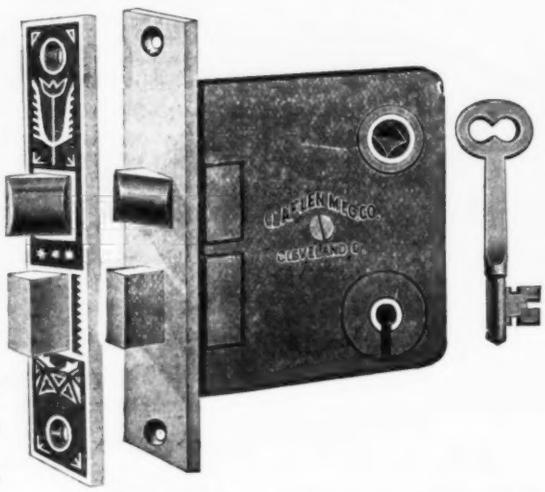

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PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes; ¼ inch to 2½ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, ½ and ⅝ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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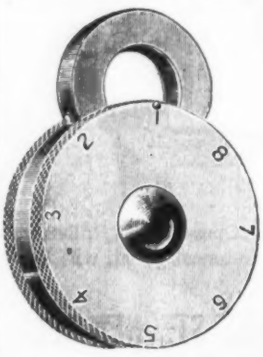
Send for Price Lists and Circulars.



IF COMBINATION LOCKS

ARE NECESSARY ON YOUR

SAFES AND VAULTS,

WHY NOT PROTECT YOUR

HOUSE DOORS

and all other places containing valuables with them? We manufacture Combination Door, Drawer, Locker, Chest, Desk, Pad, Satchel and Bicycle Locks.

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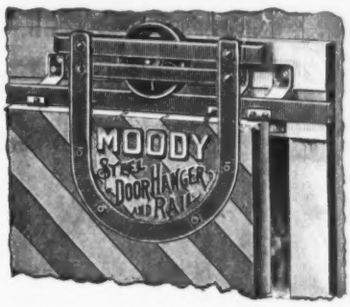
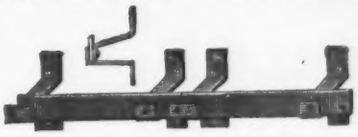


Showing one-half set of hangers attached to door.

STEEL RAIL.



The Only Bracing Bracket Made.

PRICE-LIST.

HANGERS.	Per Doz. prs.
No. 5, to run 6 feet, 3½ in. wheel,	$10.00
No. 6, to run 10 feet, 4¼ in. wheel,	15.00
No. 7, to run 15 feet, 5½ in. wheel,	22.00
RAIL, per foot.....	6½ cents.

The Caldwell Sash Balance

Acknowledged by Architects, Builders and the trade, to be the best Balance made, and a perfect substitute for cord and weights. Write us for prices, also for **THE IDEAL DOOR SPRING.**

CALDWELL MFG. CO., Rochester, N. Y.

READING HARDWARE CO., Agents, 81 Reade St., N. Y. City; 514 Commerce St., Phila., Pa.; 73 Wabash Ave., Chicago, Ill.

STAR LOCK WORKS, PHILA.

HILLEBRAND & WOLF,

MANUF'RS OF

1ST QUALITY ONLY

SCANDINAVIAN

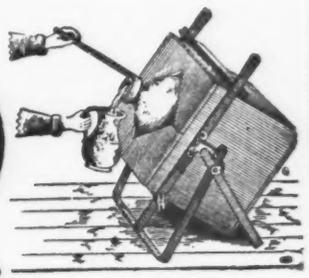
AND

SPRING PADLOCKS

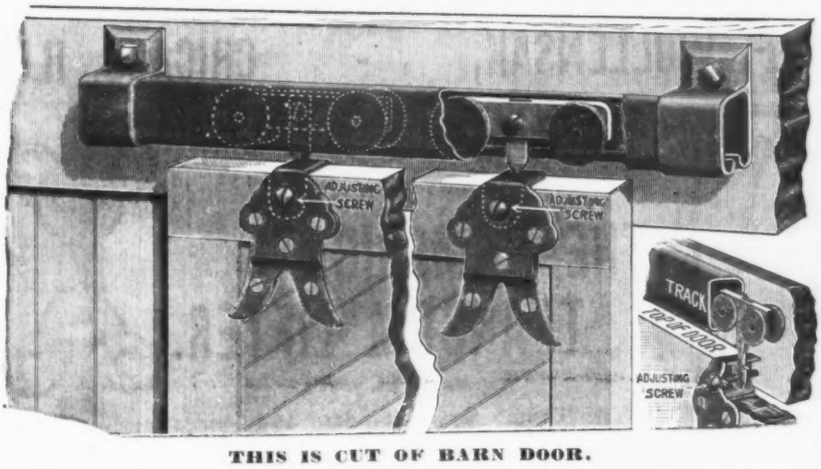
TRUNK & CASE LOCKS

CARBOY STANDS, &C.

CATALOGUES SENT ON APPLICATION.



SHUT THAT DOOR. I CAN'T.

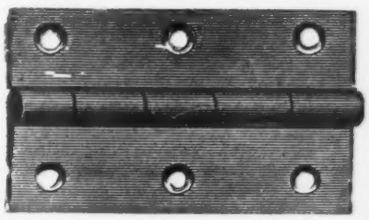


THIS IS CUT OF BARN DOOR.

It's warped. You should have hung it on a Coburn Hanger. The warping of a door does not affect the running of the door on the track. No snow or ice can get into the track to block the same. The axle bearings are self lubricating. It's the only covered adjustable track on earth. Write for prices.

THE COBURN TROLLEY TRACK MFG. CO., Sole Makers

HOLYOKE, MASS.



Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

W. & J. TIEBOUT,

Nos. 16 & 18 Chambers Street, New York.

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BRASS, GALVANIZED & SHIP CHANDLERY HARDWARE.

A Pronounced Success

BY LEADING ARCHITECTS.

This is not a Complicated Combination of Steel Ribbon, Pulleys, Attachments and Weights. Our Balance costs the consumer half the money and lasts twice as long. Requires no Box Frames. Can be applied to old as well as new windows, exactly counterbalancing the weight of the sash.

Steel Frame. Aluminum Tape. Practically indestructible.

Every Balance warranted.

Ask for Pullman and don't confuse ours with imitations.

THE PULLMAN SASH BALANCE CO., Rochester, N. Y.

Perfection Sash Balance

The only perfect device for balancing sash. Can be applied to any window frame and is particularly adapted for repair work as well as new buildings.

Each balance is fully warranted for ten years.

Trade-Mark.

PERFECTION SASH BALANCE CO.,

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P. J. Conroy & Co.,

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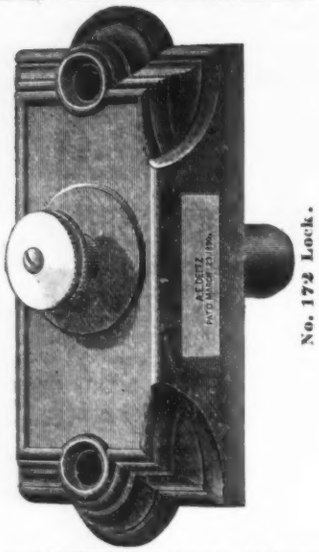
"CONROY" Refrigerator Door Fasteners

Have rapidly supplanted all others

Refrigerator Trimmings.

Pat. Dec. 15, 85.

A. E. DEITZ.

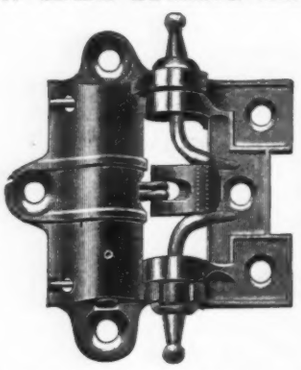


No. 172 Lock.

J. C. McCARTY & CO., Agents, 97 Chambers and 81 Reade Sts., New York.
Factory, BROOKLYN, E. D., N. Y.

NEW IDEA SPRING HINGE

Holds the door strongest when closed.



Resistance gradually decreases in opening

and increases in closing the door.

A covered (patented) hold-back Spring Hinge. Full particulars, free Sample and Prices by mentioning this paper.

STOVER MANUFACTURING CO.,
145 River St., Freeport, Ill.

SASH WEIGHTS

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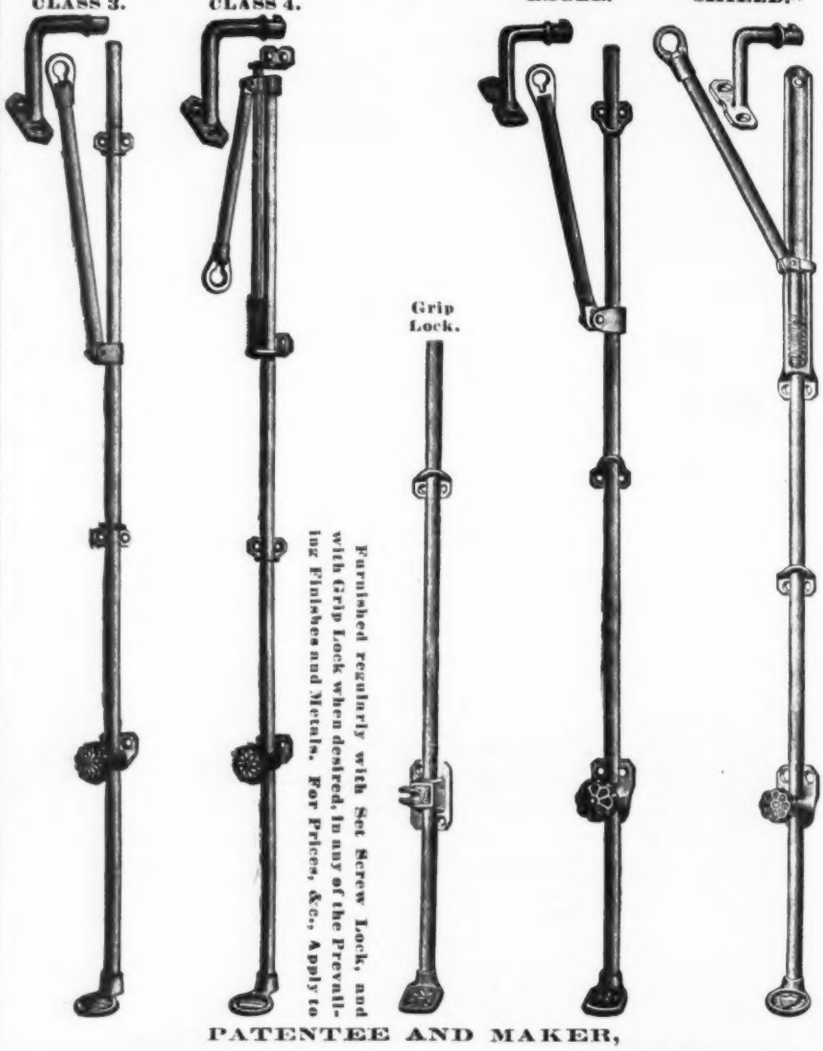
STEEL STAMPS
For Every Purpose.
Steel Letters & Figures.
Burning Brands, Stencils, &c. Send for Illustrated Catalogue.

J. F. WOLLENSAK'S PAT. TRANSOM LIFTERS.

Old Reliable.

CLASS 3. CLASS 4. "EAGLE." "SHIELD."



Furnished regularly with Set Screw Lock, and with Grip Lock when desired, in any of the Prevailing Finishes and Metals. For Prices, &c., Apply to

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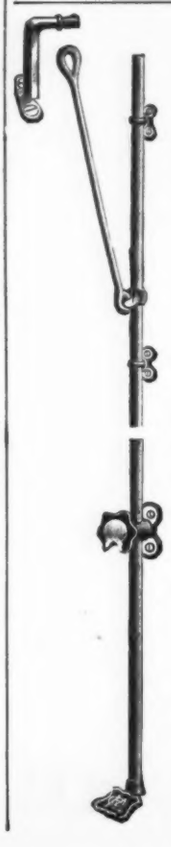

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Saves Merchant carrying double stocks.

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Shows possible position of rotatable base.

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Spring used in TRIUMPH SNAP

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TRIUMPH SNAP.

As used for attaching Bit to Bridle or Halter. Has no equal, and the lowest in price.

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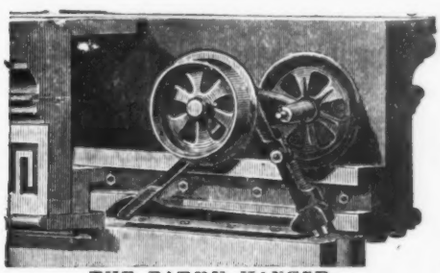

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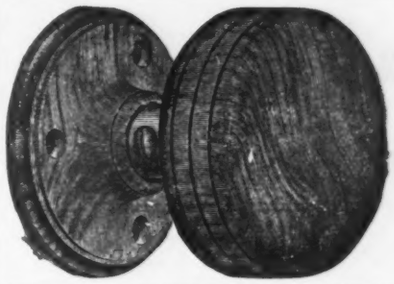

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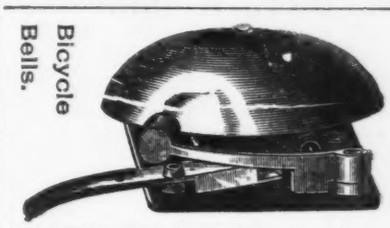

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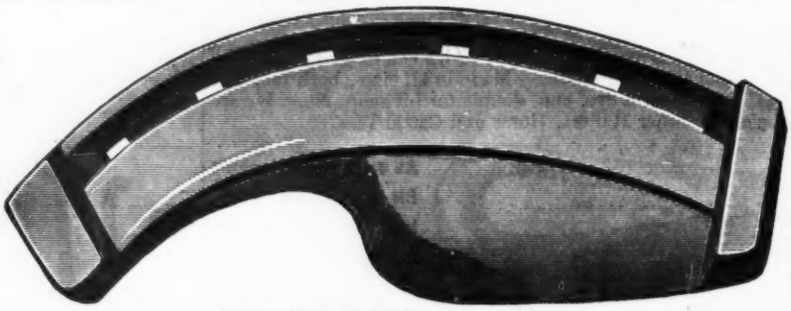

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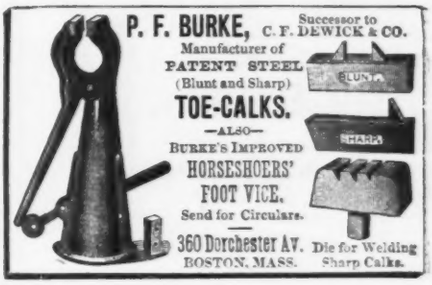

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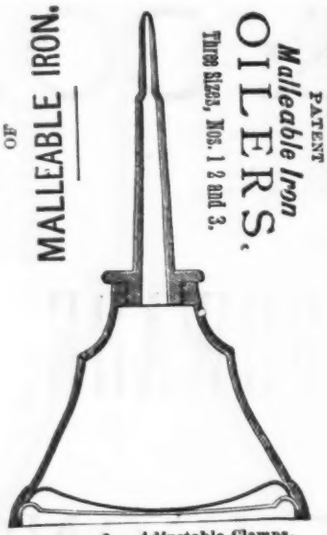

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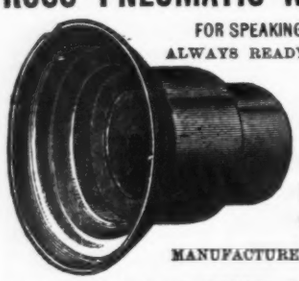

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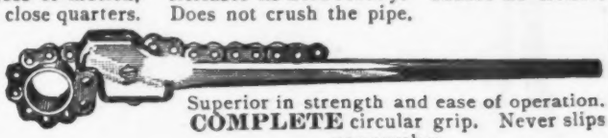

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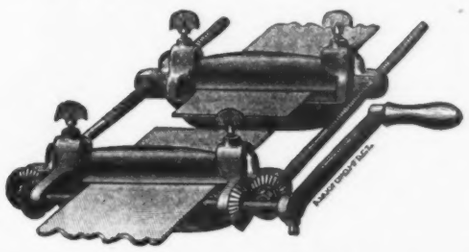

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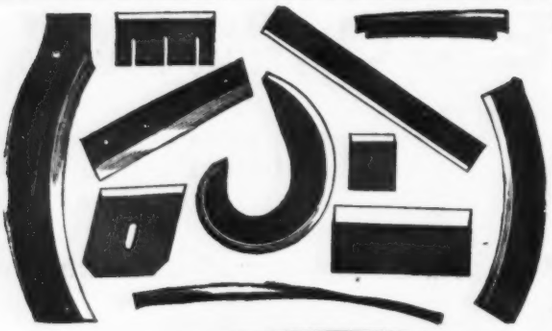

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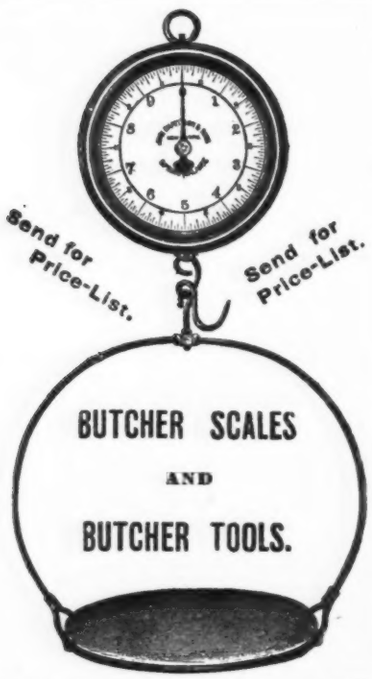

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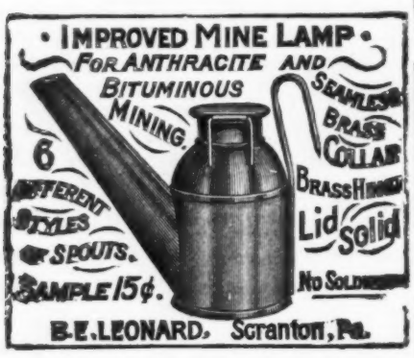

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NO REVOLVING PARTS.

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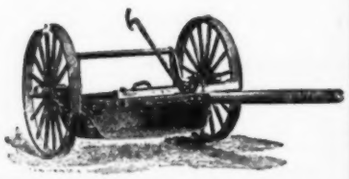

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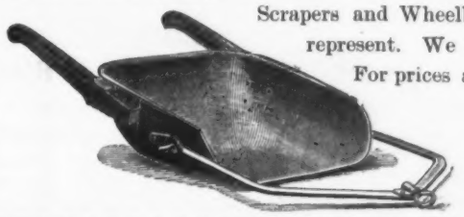

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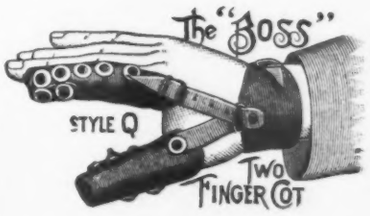

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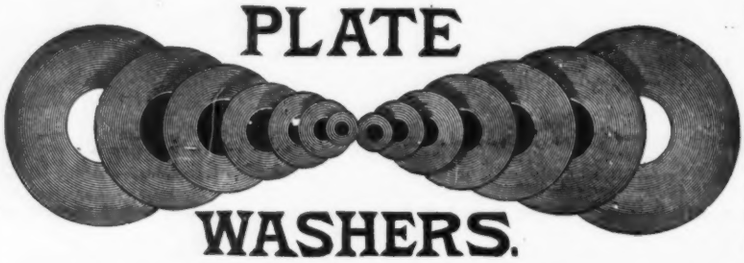

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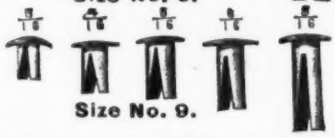

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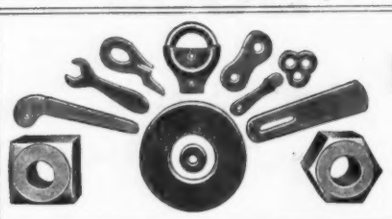

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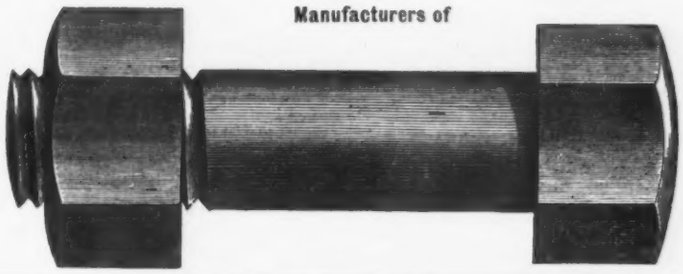

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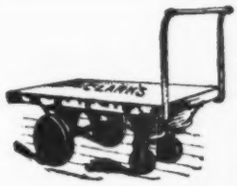

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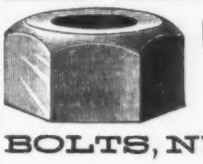

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Belden Mach. Co., New Haven, Conn.
Billings & Spencer Co., Hartford, Conn
Boone, W. C. Mfg. Co., Boonton, N. J
Eccles, Richard, Auburn, N. Y.
Merrill Bros., 26 First, Brooklyn, N. D.
Miner & Peck Mfg. Co., New Haven, Ct.
Phila. Drop Forge Co., Philadelphia, Pa.
Rhode Island Tool Co., Providence, R.I
Scranton Forging Co., Scranton, Pa.
Spiers, J. C. & Co., Worcester, Mass.
Williams, J. H. & Co., Brooklyn, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Drop Presses.
Beaudry Tool Co., Boston, Mass.
Bliss, E. W. & Co., Ltd., Brooklyn, N.Y
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Miner & Peck Mfg. Co., New Haven, Conn.
Stiles & Parker Press Co., Middletown Conn.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Dumb Waiters.
Storm Mfg. Co., Newark, N. J.

Edge Tools, *Makers of.*
Buck Bros., Millbury, Mass.
Butcher, W. S., 135 Duane St., N. Y.
Plumb, Fayette R., Philadelphia, Pa.
White, L. & I. J., Buffalo, N. Y.

Electric Bells and Supplies.
Ostrander, W. R. & Co., New York.
Wollensak, J. F., Chicago, Ill.

Electric Dynamo Machines.
Zucker & Levett Chemical Co., 538 to 554 West 16th, N. Y.

Electro-Platers.
Boardman, L. & Son, East Haddam, Ct.

Elevators, *Makers of.*
Dean-Whiting Elevator Co., Worcester, Mass.
Link-Belt Engineering Co., Phila., Pa.
Morse, Williams & Co., Phila., Pa.
Salem F'dry & Mch. Co., Salem, Mass.
Springfield Foundry Co., Springfield, Mass.

Emery.
Tanite Co., Stroudsburg, Pa.

Emery Wheels.
Diamond Mach. Co., Providence R. I.
Michigan Emery Wheel Co., Detroit Mich.
N. Y. Belting & Packing Co., Ltd., N. Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester Mass
Springfield Emery Wheel Mfg. Co, Bridgeport, Conn.
Tanite Co., Stroudsburg, Pa.
Waltham Emery Wheel Co., Waltham, Mass.

Enamels.
Celluloid Zapon Co., 41 Barclay, N. Y.
Nubian Iron Enamel Co., Cragin, Ill.

Engineers and Contractors.
Aiken Henry, Pittsburgh, Pa.
Brady Mfg. Co. Brooklyn, N. Y.
Curtis, Gram, Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N. Y.
Kennedy, Julian, Pittsburgh, Pa.
Laughlin, Alex. & Co., Pittsburgh, Pa
Lean, D. R., Pittsburgh, Pa.
McClure & Amsler, Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smith, M. V., Pittsburg, Pa.
Smythe, S. R. Co., Incorporated Pittsburgh, Pa.
Stein, W. M., & Co., Philadelphia, Pa.
Swindell, W. & Bros. Pittsburgh, Pa.
Taliman, F. G., Pittsburgh, Pa.
Zeltwe'ger, J., Chicago Ill.

Engines, Gas.
Schleicher, Schumm & Co., Phila. Pa

Engines, Steam. *Makers of.*
American Engine Co., Bound Brook, N. J.
Buckeye Engine Co., Salem, Ohio.
Cleveland & Hardwick, Erie, Pa.
Harrisburg Fdry & Machine Works, Harrisburg, Pa.
Norwalk Iron Works Co., S. N
Shipman Engine Co., Boston, Mass

See Alphabetical Index, Page 108.

Southwark Foundry and Machine Co., Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.

Exhaust Tumblers
Sweester, W. A., Brockton, Mass.

Expansion Bolts.
Boone, W. C. & Son, Brooklyn

Exporters.
Dana, S. H. Co., 13 Whitehall St., N. Y.
Rollins, Jno. G. & Co., Ltd., 4 Stone St., N. Y.

Faucets, Self-Measuring
Lane Bros., Poughkeepsie, N. Y.

Faucets, Wooden, *Makers of.*
John Sommer's Son, Newark, N. J.
Boston & Lockport Block Co., Lockport, N. Y.

Feed-Water Heaters.
Berryman, Jas., Philadelphia, Pa
Davis, I. S. & Son, Hartford, Conn.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Phila., Pa.
Whitlock Coil Pipe Co., Elmwood, Conn.

Fencing, Iron and Wire.
Barnum, E. T., Detroit, Mich.
Buffalo Fence Wire Co., Buffalo, N. Y.
Champion Iron Co., Kenton, O
Clinton Wire Cloth Co., Clinton, Mass.
DeKalb Fence Co., DeKalb, Ill.
Gilbert & Bennett Mfg. Co., 42 Cliff St.,
Hartman Mfg. Co., Beaver Falls, Pa.
Kilmer Mfg. Co., Newburgh, N. Y.
Mast, Foos & Co., Cincinnati, O.
The Van Dorn Iron Works Co., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
Reliance Wire Works Co., Milwaukee.

Fiber Ware
Standard Fiber Ware Co., Mankato, Minn.

Files, *Importers of*
Moss, F. W., 80 John, N. Y.

Files and Rasps, *Manufacturers of*
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N. Y.
Chelsea File Works, Norwich, Conn.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence R. I.
Western File Co. Ltd., Beaver Falls, Pa

Fire Brick, *Makers of.*
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer B. & Sons, foot E. Houston N. Y.
Maurer, H. & Son, 420 E. 23d, N. Y.
Renovo Fire Brick and Clay Co., Phila.,
Ostrander Fire Brick Co., Troy, N. Y.
Pressbrey Stove Lining Co., Taunton, Mass.
Union Mining Co., Philadelphia, Pa.
Valentine, M. D. & Bro., Woodbridge.

Fire Sets.
Troy Nickel Works, Troy, N. Y.

Fishing Tackle.
Dame, Stoddard & Kendall, Boston, Mass.

Flint and Emery Paper.
Baeder, Adamson & Co., Phila., Pa.

Fluor-Spar.
Illinois Fluor-Spar & Lead Co., Chicago.

Fly Fans.
Wrenn, Whitehurst & Co., Norfolk, Va

Forges, Portable, &c.
Bradley & Co., Syracuse, N. Y.
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa.
Sturtevant, B. F. Co., Boston, Mass.

Forgings, Iron and Steel.
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel—Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.

Foundry Facings.
Chicago Fdy. Supply Co., Chicago, Ill.
Paxson, J. W. & Co., Phila.
S. Obermayer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 16th St., N. Y.

Foundry Riddles.
Estey, W. S., 65 Fulton, N. Y.

Foundry Supplies.
Chicago Fdy. Supply Co., Chicago, Ill.
Collins, Victor, Detroit, Mich.
S. Obermayer Co., Cincinnati, O.
Paxson, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.
Whitehead Bros. Co., 517 W. 15th St., N. Y.

Friction Clutches.
Moore & White Co., Philadelphia, Pa.
Springfield Foundry Co., Springfield, Mass.

Fruit Presses.
Enterprise Mfg. Co., Philadelphia, Pa.
Shepard Hdw. Co., Buffalo, N. Y.

Garden Tools.
Cleves, W. B., Binghamton, N. Y.
Noyes, B. B. & Co., Greenfield, Mass.

Gas Producers.
Wood, R. D. & Co., Philadelphia, Pa.

Gas & Steam Fitters' Supplies.
Pancoast & Maule, Phila., Pa.

Gear Cutters.
Trask Milling Mch. Co., Boston, Mass.
T. R. Whiton Mach. Co., New London, Conn.

Gears.
Boston Gear Works, Boston, Mass.

Glass Boards.
Canton Saw Co., Canton, O.
Lufkin Rule Co., Saginaw, Mich.

Glass Cutters.
Monce, S. G., Bristol, Conn.

Glazier Twin Points.
Eames, H. W. Co., Milford, Mass.

Glue.
Baeder, Adamson & Co., Phila., Pa.
Dodd, A. G. & Co., Gloucester, Mass.
Russia Cement Co., Gloucester Mass.

Grass Catchers.
Diamond Machine Co., Chicago, Ill.
Norton Emery Wheel Co., Worcester, Mass.

Grinding and Polishing Machines.
Diamond Mch. Co., Providence, R. I.
Norton Emery Wheel Co., Worcester, Mass.

Grindstone Dressing Machinery.
Blake & Johnson, Waterbury, Conn.

Grindstones.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Gunpowder, *Makers of.*
Ladin & Rand Powder Co., N. Y.

Hand Carts.
Lansing Wheelbarrow Co., Lansing, Mich.

Hangers, Door.
Central City Bolt Co., Syracuse, N. Y.
Coburn Trolley Track Mfg Co., Holyoke, Mass
Lane Bros., Poughkeepsie, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Victor Mfg. Co., Newburyport, Mass.

Hardware Comm'n Merchants.
Doscher, Martin, 88 Chambers, N. Y.
Jacobus, W. H., 90 Chambers, N. Y.

Hardware Manufacturers.
Brady Mfg. Co., Brooklyn, N. Y.
Kenton Lock Mfg. Co., Kenton, Ohio.
Phila. Hardware and Mall. Iron Wks., Philadelphia, Pa.
Shepard Hdw. Co., Buffalo, N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Union Mfg. Co., 108 Chambers, N. Y.
Yale & Towne Mfg. Co., Stamford, Conn

Hardware Mfrs. Agents.
Corbett, Newton, Chicago, Ill.
Granam, John H. & Co., 113 Chambers.
McCoy, Jos. F. Co., 26 Warren St., N. Y
Sickles, Sweet & Lyon, 35 Barclay, N. Y.
Surplus, Dunn & Alder, 97 Chambers St., New York,
Underhill, Clinch & Co., 94 Chambers St., N. Y.

Hardware Specialties.
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co. New Haven, Conn.
Cleveland Fdy. Co., Cleveland, O.
Coplan & Hdw. Mfg. Co., Worcester, Mass.
Ellis, Geo. D. & Sons Co., Phila., Pa.
Eclipse Hdw. Mf. Co., Plantsville, Conn.
Empire Portable Forge Co., Lansingburg, N. Y.
Enterprise Mfg. Co., Philadelphia, Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn
North Bros. Mfg. Co., Philadelphia, Pa
Phila Hardware and Mall. Iron Wks. Philadelphia, Pa.
The Stanley Works, New Britain, Conn
Weiland, Chas., 143 Chambers St., N. Y
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y

Hardware, Yacht and Ship.
Ferdinand, L. W. & Co., Boston, Mass.

Harness Snaps.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg. Co., Farmer Village, N. Y.
Fitch, W. & E. T., New Haven, Conn.

Hay Fork Pulleys.
Boston and Lockport Block Co., Boston, Mass.

Hoisting Machines.
Box, Alfred & Co., 314 Green, Phila.
Copeland & Bacon, 85 Liberty St. N. Y
Fulton Iron & Engine Wks., Detroit, Mich.
Harrington, E., Son & Co., Phila.
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Mars Machine Co., Philadelphia.
Moore Mfg & Fdy. Co., Milwaukee Wis
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Speidel, J. G., Reading, Pa.
Yale & Towne Mfg. Co., Stamford, Ct.

Hollow-Ware.
Bronson Supply Co., Cleveland, Ohio.
N. Y. Stamping Co., Brooklyn, E. D., N. Y
Stuart & Peterson Co., Phila., Pa.

Horse and Barbers' Clippers.
Hotchkiss, E. S., Bridgeport, Conn.

Horse Nails, *Makers of.*
Ausable Horse Nail Co., 4 Warren, N. Y.
National Horse Nail Co., Vergennes, Vt.

Horse Shoes, *Makers of.*
Bryden Horse Shoe Co., Catasauqua, Pa.
Diamond State Iron Co., Wilmington, Del.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
The Burden Iron Co., Troy, N. Y.

Hose.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Hose Menders.
Hudson, C. E., Leominster, Mass.

Hydrants, &c.
McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Jacks.
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.

Ice-Cream Freezers.
Jack Frost Freezer Co., 29 Murray St. N. Y
North Bros. Mfg. Co., Philadelphia, Pa
Packer, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H

Ice Creepers.
Kent, S. W., Meriden, Conn.

Injectors.
Jenkins Bros., New York

Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co.

Iron and Steel, Swedish.
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
Page, Newell & Co., Boston, Mass.

Iron Commission Brokers.
Cason, Wm. R. & Co., Philadelphia.
Corning, Edw. & Co., 20 B'way, N. Y.
Cox, Justice, Jr., & Co., Philadelphia
Esherick, Cotton & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Keeley, Jerome & Co., Philadelphia.
Lea, J. Tatnall & Co., Philadelphia.
Mohr, J. J., 420 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Wister, L. & R. & Co., Phila., Pa.

Iron Ore.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.

Iron, *Merchants.*
Borden & Lovell, 70 West, N. Y.
Bussenius & Cunliffe, Philadelphia.
Corning Edw. & Co., 29 B'way, N. Y.
Esherick, Cotton & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Judson, B. F., 457 Water, St., N. Y.
Leonard, J., 446 West St., N. Y.
Naylor & Co. 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St. N. Y.
Page, Newell & Co., Boston, Mass.
Pickards, Brown & Co., Cleveland, O.
Pierson & Co., 24-27 West, N. Y.
Richards, D. W. & Co., 88 Mangin St. N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.

Iron, *Importers.*
Abbott, Jere & Co., N. Y. and Boston.
Judson, B. F., 457 Water St., N. Y.
Lundberg, Gustaf, Boston.

Iron, Sheet, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio
W. Dewees Wood Co., Lim., Pittsburgh.

Ironwork, Ornamental.
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Field-Lang Wire & Metal Co., St. Louis
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.

Keys.
Wollensak, J. F., Chicago, Ill.

Ladles.
Detroit Fdy. Equipment Co., Detroit, Mich.

Lanterns.
Dietz, R. E. & Co., 60 Laight St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.
Millers Falls Co., 93 Reade, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sebastian, May & Co., Sidney, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Lathing.
Bostwick Metal Lath Co., 38 Park Row, N. Y.
Clinton Wire Cloth Co., St. Louis, Mo.
N. J. Wire Cloth Co., Trenton, N. J.

Lawn Keepers.
Palmer Hdw. Mfg. Co., Troy, N. Y.

Lawn Mowers.
Blair Mfg. Co., Springfield, Mass.
Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
Coldwell Lawn Mower Co., Newburg, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Foos, G. S. Co., Springfield, O.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Foos & Co., Springfield, O.
Supplee Hdw. Co., Philadelphia, Pa.

Lawn Sprinklers.
Ette & Henger Mfg. Co, St. Louis, Mo.
Graham, Jno. H. & Co., 113 Chambers Street, N. Y.
Kupferle, John C., St. Louis, Mo.

Lawn Sweepers.
F. & N. Mfg. Co., Richmond, Ind.

Lead Pipe Cutters.
Barrett, E. C. & Co, Brockton, Mass.

Lemon Squeezers.
Hotchkiss, E. S. Bridgeport, Conn.
Ripley Mfg. Co., Unionville, Conn.

Letter Boxes.
Merriam Mfg. Co., Durham, Conn.

Levels.
Akron Spirit Level Co., Akron, O.
Richardson, C. F., Athol, Mass.

Locks & Knobs, *Manufacturers of.*
Branford Lock Works, Branford, Ct.
Canton Combination Lock Co., Canton, Ohio.
Clafien Mfg. Co., Cleveland, O.
Deits, A. E., 97 Chambers, N. Y.
Reading Hdw. Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport.
Warner Lock Co., Chicago, Ill.
Yale & Towne Mfg. Co., Stamford.

Lubricators.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Lumbering Tools.
Champion Tool & Handle Wks., Evart Mich.

Machinery.
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Beaman & Smith, Providence, R. I.
Bement, Miles & Co., Philadelphia, Pa.
Bickford, H., Lockport, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bigelow, C. E., 45 Dey, N. Y.
Bridgeport Mch. Tool Works, Bridgeport, Conn.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Bullock, C. K., Philadelphia, Pa.
Carlin's Sons, Thos., Allegheny, Pa.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y
Coulter & McKenzie Mch. Co., Bridgeport, Conn
Cruikshank, D. B., Providence, R. I.
Davis, W. P., Rochester, N. Y.
Eddy, Geo. B., 398 Madison St., N. Y.
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co., Laight & Canal Sts.
Gould & Eberhardt, Newark, N. J.
Harrington, E. Son & Co., Phila. Pa.
Henderson Machine Tool Co. Phila, Pa.
Hendey Machine Co., Torrington, Ct.
Hill, Clarke & Co., Boston, Mass.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield Vt
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Manville, E. J. Mch. Co, Waterbury Conn.
Newark Mch. Tool Works, Newark, N. J
New Haven Mfg. Co., New Haven, Conn
New York Mach'y Depot, N. Y
Ohio Machine Tool Wks, Cincinnati, O.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Powell Planer Co., Worcester, Mass
Pratt & Whitney Co., Hartford, Conn.
Prentiss Tool & Supply Co., N. Y.
Robertson, W. H., Chicago, Ill.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert, L. F., Philadelphia, Pa
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Phila.
Toomey, Frank, Philadelphia, Pa.
Trask Milling Mch. Co., Boston, Mass.
Wetherill, Robert & Co., Chester, Pa.
Wickes Bros., Saginaw (E. S.), Mich.
Wilson, W. A., Rochester, N. Y.
Woodruff Mfg. Co. Hartford, Conn.

Machinery for Hardware Manufacture.
Adt, Jno. & Son, New Haven, Conn.

Machine Knives.
Loring Coes & Co., Worcester, Mass.

Machine Tools.—*See Machinery.*

Machine Work.
Angus, C. H., Albany, N. Y.

Machinists' Scales.
Coffin & Leighton, Syracuse, N. Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.
Brown & Sharpe Mfg. Co., Providence, R. I.
Sellers, Wm. & Co., Inc., Phila.

Magnesite.
De Valliere, H., 19 William St., N. Y.

Mallets.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
N. Y. Mallet & Handle Works, N. Y.

Manufacturing Sites.
Branford, Conn.
Lemont, Ill.
Mordant F. S. Co., Chicago.
Norfolk & Western R. R.
Ogden, Utah.
N. Y., L. E. & W. R. R.
Plymouth, Ind.
So. Bethlehem, Pa.

Metals.
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
Simpers, Collins & Co., Phila., Pa.

Metal Brokers.
American Metal Co., N. Y.

Metallurgists.
Britton, J. Blodgett, Phila.

Metal Polish.
Gaston, Weston & Ladd, 46 Beekman Street, N. Y.

Metal Saws.
Ehrnardt, Gustave & Sons, Pittsburg, Q & C Co., Chicago, Ill.

Mine Lamps.
Darby, Edw. & Sons, Phila, Pa.
Leonard, B. E., Scranton, Pa.
Leonard, T. F., Scranton, Pa.

Mining Screens.
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.

Minnow Traps.
Cochennour & Wilson, Olney, Ill.

Molding Sand.
Downer, W. A., Downer, N. J.
Paxson, J. W. & Co., Phila.

Motors, Water and Electric.
Thomson-Houston Motor Co., Boston, Mass.

Nail Machinery.
Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.
Bellaire Nail Works, Bellaire, O.
Borden & Lovell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Fuller Bros. & Co., 159 Greenwich, N. Y.
Oxford Iron Co., 81 Washington, N. Y.
Pottstown Iron Co., Pottstown, Pa.
Stebbins, C. J., 103 Reade, N. Y.

Nickel.
Am. Trading Co., 182 Front, St., N. Y.

Nickel Platers' Supplies.
Zucker & Levett Chemical Co., 587 to 594 West 16th, N. Y

Norway Shapes, *Rollers of.*
Rowland, William & Harvey, Frankford, Philadelphia

Nut Machines.
Dunham Nut Mch. Co., Unionville, Ct.

Nuts, Bolts, &c., *Makers of.*
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury Conn.
Haskell, Wm. H. Co., Pawtucket, R. I.
Port Chester Bolt and Nut Co., Port Chester, N. Y.
Russell, Burdsall & Ward, Port Chester
Rhode Island Tool Co., Providence, R. I
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, J. Fred., Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.

Oilers.
Hammer & Co., Branford, Conn.
Williams H. A. Mfg. Co., Boston, Mass

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Oil and Grease Cups.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
Seibert Cylinder Oil Cup Co., Boston, Mass.

Oil Stones.
Chase, Geo., 107th & Harlem R.,
Pike Mfg. Co., Pike Station, N. H.

Ore Roasters.
Davis-Colby Ore Roaster Co., Phila.

Ores.
Wister, Francis, Philadelphia, Pa.

Ox Shoes.
Scranton Forging Co., Scranton, Pa.
Woodruff, Walter W. & Sons, Mt. Carmel, Conn.

Packing.
Billington, Jas. H. & Co., Phila., Pa.
Greene Tweed & Co., 83 Chambers St., N. Y. Belting & Packing Co. Ltd, N. Y.

Padlocks.
Ames Sword Co., Chicopee, Mass.
Fraim, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Slaymaker, Barry & Co., Lancaster, Pa.

Paint.
Canton Steel Roofing Co., Canton, O.
Dixon, Jos. Crucible Co., Jersey City, N. J.
U. S. Graphite Co., Saginaw, Mich.

Paint Burners.
Dangler Stove & Mfg. Co., Cleveland, O.

Patent Solicitors.
Ashley, J. A., Washington, D. C.
Dudley, W. U. & Co. Washington, D. C.
Gooch, C. J., Washington, D. C.
Howson & Howson, Phila. & Wash'gton.
Wister, J. Wm., Washington, D. C.
Stocking, E. B., Washington, D. C.

Pattern Letters.
Wells, Heber, 8 Spruce St., N. Y.

Pencil Sharpeners.
Goodel Co., Antrim, N. H.

Perforated Metal.
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co. Chicago, Ill.

Phosphor Bronze.
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia.

Phosphor Tin.
Halk & Naumann, 516 Pearl, N. Y.

Photographic Plates.
Carbutt, Jno., Philadelphia, Pa.

Picks and Mattocks.
Plumb, Fayette R., Philadelphia, Pa.

Picture Cord, Wire.
Tate & Co., Malden, Mass.

Pig Iron.
Mann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pilling & Crane, Philadelphia, Pa.

Pig Iron Storage.
Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.

Pipe, Bent.
National Pipe Bending Co., New Haven

Pipe Cutters.
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Pancoast & Mauls, Philadelphia.
Saunder's Sons, D., Yonkers, N. Y.

Pipe Grips.
Prentiss Vise Co., 44 Barclay, N. Y.

Pipes, Fittings, &c., *Makers of.*
McNab & Harlin Mfg. Co., N. Y.

Pipe, Water and Gas. *Makers of*
Cumberland Nail & Iron Co., Phila., Pa.
Donaldson Iron Co., Emaus, Pa.
Kellogg Seamless Tube Mfg. Co., Findlay, Ohio.
Wood, R. D. & Co., Phila.

Plane Irons, *Manufacturers of.*
Buck Bros., Millbury, Mass.

Planes, *Manufacturers of.*
Stanley Rule & Level Co., N. Y.

Plate Bending Rolls.
Wickes Bros., Saginaw, (E. S.), Mich.

Plated Ware.
Upson & Hart Co., Unionville, Conn.

Plate, Iron and Steel, *Mfrs of*
Alan Wood Co., Philadelphia.
Ætna Iron & Steel Co., Bridgeport, O.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McLean Co., Pittsburgh, Pa.
McIlvain & Sons, Reading, Pa.
Pottstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
Singer, Nimick & Co., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Alan Wood Co., Philadelphia.

Plating, Nickel, Brass and Bronze.
Angus, C. B., Albany, N. Y.

Plumbago.
Chicago Foundry Supply Co., Chicago, Ill.
U. S. Graphite Co., Saginaw, Mich.

Polishing Machines.
Watson & Stillman, 204 E. 43d, N. Y.

Polishing Wheel.
La Massena, C. E. & Co., Newark, N. J.

Post Hole Diggers.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Wright & Colton Wire Cloth Co. Worcester, Mass

Powder.
Laflin & Rand Powder Co., 29 Murray

Power Hammers.
Beaudry Tool Co., Boston, Mass.
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Dienelt & Eisenhardt, Philadelphia.
Hackney Hammer Co., Cleveland, O.
Jenkins & Lingle, Bellefonte, Pa.
Long & Allstatter Co., Hamilton, Ohio.

Power Punches and Shears.
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, Ohio.

Presses, Dies, &c.
Beaudry Tool Co., Boston, Mass.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Middletown Conn.

Presses, Power, *Makers of.*
Eaton, Geo. H. & Co., Boston, Mass.
Long & Allstatter Co., Hamilton, O
Manville, E. J., Mch. Co., Waterbury, Ct,
Merriman, A. H., West Meriden.
Niagara Stamping and Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.

Pumping Machinery.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McGowan, J. H. & Co., Cincinnati, O.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa
Valley Pump Works, Easthampton, Mass.

Pumps, *Makers of.*
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
Field Force Pump Co., Lockport, N. Y
Kegler, Weinschenk & Ohlers, Bellevue Ia.
Mast, Foos & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co. St. Joseph, Mo.

Punches and Shears, Hand and Power.
New Doty Mfg. Co., Janesville, Wis.
Niagara Stamping and Tool Co., Buffalo, N. Y.

Punching and Shearing Presses.
E. W. Bliss Co., Ltd., Brooklyn, N. Y.
Crosby, G. A. & Co., Chicago, Ill.
Stiles & Parker Press Co., Middletown, Conn.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.

Rails, Old and New.
Richards, J. H. & Co., Pittsburgh, Pa.

Railway Supplies.
Scully-Castle Co., Chicago, Ill.

Rat and Mouse Traps.
Chillicothe Mfg. Co., Chillicothe, O.
Estey, W. S. 65 Fulton, N. Y.
Hotchkiss, E. S., Bridgeport, Conn.
Paine, A. W., Boston, Mass
Ripley Mfg. Co., Unionville, Conn.

Razors.
Butcher, W. & S., 135 Duane St., N. Y.
Electric Cutlery Co., 113 Chambers, N. Y
Jordan, A. J., St. Louis, Mo.
Southington Cutlery Co., Southington, Conn.
J. R. Torrey Razor Co., Worcester, Mass

Recording Pressure Gauges.
Bristols Mfg. Co., Waterbury, Conn.

Refrigerator Door Fasteners.
Conroy, P. J. & Co., Philadelphia.

Rivets.
Blake & Johnson, Waterbury, Conn.
Cobb & Drew, Plymouth, Mass.
Henderson, Jas. S., 165 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Thompson, Judson L. Mfg. Co., Boston, Mass.
Townsend, W. P. & Co., New Brighton Pa.

Riveting Machines.
Adt, Jno. & Sons, New Haven, Conn.

Rock Breakers.
Totten & Hogg Iron & Steel Fdry. Co., Pittsburgh, Pa.

Rock Drills.
Rand Drill Co., 23 Park Place, N. Y.

Roller Tube Expanders.
Bullock, C. K., Philadelphia, Pa.

Rolling Mill Machinery.
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd, Co., Youngstown, O.
Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning Fdry & Mch. Co., Danville, Pa.
Robinson-Rea Mfg. Co., Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.

Rolls, Chilled, Sand and Steel.
Booth, The Lloyd, Co., Youngstown, O.
Chicago Foundry Co., Chicago, Ill
Garrison, A. & Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa
Seaman, Sleeth & Black, Pittsburgh.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.

Roofing.
Berlin Iron Bridge Co., E. Berlin, Conn
Cambridge Roofing Co., Cambridge, O.
Johns, H. W. Mfg. Co., 87 Maiden Lane
White, Scott A., Pittsburgh, Pa.

Roofing Slate.
Auld & Conger, Cleveland, O.

Rules, *Manufacturers of.*
Lufkin Rule Co., Saginaw, Mich.
Stanley Rule & Level Co., 29 Chambers,

Rubber Goods.
Canfield, H. O., Bridgeport, Conn.

Saw Irons.
Universal Saw Iron Co., Milwaukee, Wis

Sand, Artificial.
Edison, T. A., Ogdensburg, N. J.

Sand Paper.
Baeder, Adamson & Co., Phila., Pa.

Sand Paper Machinery.
York Flint Paper Co., York, Pa.

Sash Balances.
Caldwell Mfg. Co., Rochester, N. Y.
Perfection Sash Balance Co., Rochester, N. Y.
Pullman Sash Balance Co., Rochester, N. Y.
Stewart & Baker, Rochester, N. Y.

Sash Cords and Chains.
Binns' Patent Band Co., Phila., Pa.
Morton, Thos., 65 Elizabeth, N. Y.
Smith & Egge, Mfg. Co., Bridgeport.
Sutton, F. A., Providence, R. I.
Tate & Co., Malden, Mass.

Sash Locks.
Champion Safety Lock Co., Cleveland, Ohio.
Ives, H. B. & Co., New Haven, Conn.

Sash Pulleys.
Palmer Hardware Mfg. Co., Troy, N. Y

Sash Weights.
Brown, E. E. & Co., Philadelphia, Pa.

Saws, *Makers of.*
Atkins, E. C. & Co., Indianapolis, Ind.
Disston, Henry & Sons, Phila., Pa.
Jennings, C. E. & Co., 97 Chambers, N. Y.
National Saw Co., 96 Reade St., N. Y.
Richardson Bros., Newark, N. J.
Simonds Mfg Co., Fitchburg, Mass.

Saw Sets.
Kohler, F. E. & Co., Canton, Ohio.
Lloyd, W. J. Mfg. Co., Philadelphia, Pa.
Taintor Mfg. Co., 84-86 Chambers, N. Y.

Scales, *Manufacturers of.*
Buffalo Scale Co., Buffalo, N. Y.
Chatillon, John & Sons, 85-89 Cliff, N. Y.

Screens, Door and Window.
Queen Anne Screen Co., Burlington, Vt.

Screw Cutting Machinery.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Screw Drivers.
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.

Screw Plate and Pipe Cutter.
Jarecki Mfg. Co., Erie, Pa.

Screws, *Makers of.*
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket.
Miles, F. S., 205 Quarry, Philadelphia.
National Screw & Tack Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Worcester Machine Screw Co., Worcester, Mass.

Scroll Saws.
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Scythe Stones and Whetstones.
Pike Mfg. Co., Pike Stat'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Port Austin, Mich.

Separators, Steam.
Stratton Separator Co., 32 Cortlandt St., N. Y

Shafting, *Makers of.*
Cresson, Geo. V., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc. Phila. Pa.
Stow Mfg. Co., Binghampton, N. Y.

Shaped Iron and Steel, *Manufacturers of.*
Ætna Iron & Steel Co., Bridgeport, O.
Allentown Rolling Mill, Phila.
Boonton Iron & Steel Co., Boonton, N. J.
Carnegie, Phipps & Co., Pittsburgh, Pa
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson.
Pottsville Iron & Steel Co., Pottsville, Pa
Roberts, A. & P. & Co., Phila.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.

Shears and Scissors.
Acme Shear Co., Bridgeport, Conn

Sheet Iron and Steel, *Manufacturers of.*
Ætna Iron and Steel Co., Bridgeport,
Cambridge Iron & Steel Co., Cambridge, Ohio.
Carroll-Porter Boiler & Tank Co., Pittsburgh, Pa.
Chess Bros., Pittsburgh, Pa.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 24-29 West St., N. Y.
Reeves Iron Co., Canal Dover, O.
Reily, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ltd., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.

Sheet Zinc.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Shoes and Dies.
Chrome Steel Works, Brooklyn, N. Y.

Sinks.
Douglas, W. & B., Middletown, Conn.

Skates, Ice.
Winslow, Sam'l, Skate Mfg. Co. Worcester, Mass.

Skates, Roller.
Henley, M. C., Richmond, Ind.
Winslow, Saml., Skate Mfg. Co., Worcester, Mass.

Skylights.
Brienty Horticultural & Skylight Wks., 145 Liberty St., N. Y.

Smelting Works.
Reeves, Paul S., 760 S. Broad, Phila.

Speaking Tubes.
Ostrander, W. R. & Co., N. Y.

Speaking Tube Whistles.
Fallows Jas. & Sons, Philadelphia, Pa.

Specialties, Pat. Articles.
Konigslow, O., Cleveland, O.

Spelter.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.

Splice Bars, Iron and Steel.
Springfield Iron Co., Springfield, Ill.

Spool Wire.
Tate & Co., Malden, Mass

Spoons and Forks.
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.

Sporting Goods.
Hartley & Graham, 19 Maiden Lane

Springs.
American Spiral Spring Co., Pittsburg, Pa.
Dunbar Bros., Bristol, Conn.
Haley Mfg. Co., Concord, N. H.
Miller & Van Winkle, 102 Walker St., N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred., 166 W. 27th St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Tuck Mfg. Co., Brockton, Mass
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Spring Hinges.
Bardsley, J., 149 & 151 Baxter St., N. Y.
Shepard Hdw. Co., Buffalo N. Y.
Stearns, E. C. & Co., Syracuse, N. Y.
Stover Mfg. Co., Freeport, Ill.
Union Mfg. Co., 103 Chambers, N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.

Spring Keys and Cotters.
Jencks Mfg. Co., Pawtucket, R. I.
Whitman & Barnes Mfg. Co., Syracuse N. Y.

Sprinklers.
Shepard, Sidney & Co., Buffalo, N. Y.

Stamped Ware.
Am. Stamping Co., 104 & 106 John St., New York
Steel Edge Stamping & Retinning Co Boston, Mass.

Stamping Works.
Avery Stamping Co., Cleveland, O.
Gaynor & Mitchell Mfg. Co., Bridgeport, Conn.

Staples.
Cobb & Drew, Plymouth, Mass.
Titchener, E. H. & Co., Binghamton N. Y.

Steam Gauges.
Bristols Mfg Co., Waterbury, Conn.

Steam Hammers, &c., *Makers of.*
Dienelt & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia, N. Y.

Steam Heating.
Webster Warren & Co., Phila., Pa.

Steel, Cold Rolled Strip.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.

Steel Figures and Alphabets.
Krogsrud, W., 61 Fulton, N. Y.
Stutzman, J. M., 181 William, N. Y.

Steel Importers.
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Lindsay, Jas. G. & Co., Philadelphia
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 83 John, N. Y.
Page, Newell & Co., Boston, Mass.
Wetherell Bros., 93 Liberty St., N. Y
Whitney, A. R. & Co., B'dway, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

Steel (Mushet's Special).
Jones, B. M. & Co., Boston.

Steel Manufacturers.
Ætna Iron & Steel Co., Bridgeport, O.
Bellaire Nail Works, Bellaire, Ohio.
Bethlehem Iron Co., S. Bethlehem, Pa.
Boker, Hermnan & Co., 103 Duane St.
Buffalo Steel Foundry, Buffalo, N. Y.
Carnegie, Phipps & Co., Ltd, Pittsburgh
Chester Steel Castings Co., Phila.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 97 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 83 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pierson & Co., 24-27 West, N. Y.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reeves Iron Co., Canal Dover, O.
Reily, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Wardlaw, S. & C., Sheffield, Eng
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport Conn.

Steel, *Manufacturers' Agents.*
Corning, Edw., & Co., 29 B'way, N. Y.

Steel Rails, *Manufacturers of.*
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Phila., Pa.
Carnegie, Phipps & Co., Ltd., Pittsburgh, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
The Montour Iron & Steel Co., Danville, Pa

Steel Screw Punches.
Bullock, C. K., Philadelphia, Pa.

Steel Spiral Springs, *Manufacturers*
Chatillon, John & Sons, N. Y.
Roland, Wm. & Harvey, Frankford.
Wolff, R. H. & Co., Ltd., 118 Street and Harlem River, N. Y.

Steel, Tool.
Frankford Steel Co., Philadelphia.
Jessop, Wm. & Sons, Sheffield, England 91 John, N. Y.
La Belle Steel Co., Pittsburgh, Pa.

Step Ladders.
Bicycle Step Ladder Co., Chicago, Ill
Coburn Trolley Track Mfg. Co., Holyoke, Mass.

Stocks and Dies.
Armstrong Mfg. Co., Bridgeport, Conn
Billings & Spencer Co., Hartford, Conn
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunder's Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Stove Linings.
Ostrander Fire Brick Co., Troy, N. Y.

Stove Pipe Thimbles.
Cheney, S. & Son, Manlius, N. Y.

Stove Trimmings.
Troy Nickel Works, Troy, N. Y.

Street Lamps.
Steam Gauge & Lantern Co., Syracuse N. Y.

Straps.
Electric Cutlery Co. 113 Chambers, N. Y
J. R. Torrey & Co., Worcester, Mass.

Sulphuric Acid.
Matthiessen & Hegeler Zinc Co. La Salle, Ill.

(See Alphabetical Index, Page 108.)

Tacks, Brads, Staples, &c.
Atlas Tack Corporation, Boston, Mass
A. Field & Sons, Taunton, Mass.
Cobb & Drew, Plymouth, Mass.
Dinsmore & Henderson, 165 Green wich, N. Y.
National Screw & Tack Co., Cleveland Ohio.
Phillips, E. & Sons, South Hanover.
Plymouth Mills, Plymouth, Mass.
Trufant, W. E., Whitman, Mass.

Taps and Dies.
Butterfield & Co., Derby Line, Vt.
Manning, Maxwell & Moore, 111 Liberty, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.

Testing Laboratories.
Richie Bros. Testing Mch. Co., Philadelphia.
Sibley College, Cornell University.

Testing Machines.
Richie Bros. Testing Mch. Co., Phila.

Thill Springs.
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.

Tinning Process.
Flanders, W. T. & Co., Nashua, N. H.

Tinware.
Am. Stamping Co., 104 & 106 John St., N. Y.

Tire Cement.
Am. Trading Co., 182 Front, st., N. Y

Toe Calks, Steel.
Burke, P. F., Boston, Mass.

Tool Handles.
Copeland Hardware Mfg. Co., Worcester, Mass.

Tools.
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Church & Sleight, 109 Fulton, N. Y.
Jennings, C. E. & Co., 97 Chambers, N.Y.
Lape, W. E., Syracuse, N. Y.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, Starrett, L. S., Athol, Mass.

Tools, Blacksmith and Wheelwrights.
Buffalo Forge Co., Buffalo, N. Y.
Champion Blower & Forge Co., Lancaster, Pa
Illinois Iron & Bolt Co., Carpenterville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Silver Mfg. Co., Cleveland, O.

Tools, Steam and Gas Fitters'
Saunders' Sons, D., Yonkers, N. Y.

Torches, Oil and Gasolene.
Dangler Stove & Mfg. Co., Cleveland, O.

Transom Lifters.
Munger-Colton Mfg. Co., Chicago, Ill.
Wollensak, J. F., Chicago, Ill.

Tricycles.
Fay Mfg. Co, Elyria, O.

Trucks, *Manufacturers of.*
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. P., Windsor Locks, Conn.
Lansing Wheelbarrow Co. Lansing Mich.

Tubes, Seamless Drawn Copper.
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Bloomsburg Brass & Copper Co., Bloomsburg Pa
Randolph & Clowes, Waterbury, Conn.

Tubes, Steel.
Graham Twist Drill & Chuck Co., Detroit, Mich.

Tumbling Barrels.
Henderson Bros., Waterbury, Conn.

Turnbuckles.
Carnegie, Phipps & Co., Ld., Pittsburgh, Pa.
Cleveland City Forge and Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.

Twist Drills, *Makers of.*
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Standard Tool Co., Cleveland.

Valves, Gas, Water and Steam.
Ashton Valve Co., Boston, Mass.
Chapman Valve MfgCo., Boston.
Jenkins Bros., 71 John, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Brass Mfg. Co., Cincinnati, Ohio.
McNab & Harlin Mfg. Co., 56 John N. Y
Mason Regulator Co., Boston, Mass.

Ventilator Appliances.
Howard & Morse, 45 Fulton, N. Y.

Vises.
Holland Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y
Prentiss Vise Co., 44 Barclay N. Y.

Wagon Jacks.
Boston & Lockport Block Co., Boston Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert, E. Mfg.Co., Farmer Village, N.Y.

Washers.
Haskell, Wm. H, Co., Pawtucket, R. I.
Lanman, E. B., Columbus, Ohio.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.

Water and Steam.
Kennedy, D., 59 Cliff St., N. Y.

Well Boring Machines.
Oil Well Supply Co., Pittsburgh, Pa.

Wheelbarrows
Akron Tool Co., Akron, O.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Lansing Wheelbarrow Co., Lansing, Mich.
Sidney Steel Scraper Co. Sidney, O.

White Lead.
Atlantic White Lead and Linseed Oil Co., 287 Pearl, N. Y.

Wire, *Manufacturers of.*
American Spiral Spring Co., Pittsburg, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Continental Wire Co., St. Louis, Mo.
Eastwood Wire Mfg. Co., Belleville, N. J.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Haley Mfg. Co., Concord, N. H.
Lambert & Bishop Wire Fence Co., Joliet, Ill.
Miller & Van Winkle, 102 Walker St., New Haven Wire Mfg. Co., New Haven, Conn.
Prentiss, Geo. W. & Co., Holyoke, Mass.
Salem Wire Nail Co., Salem, O.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester
Wetherell Bros., 93 Liberty St., N. Y.
Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.

Wire Cloth.
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Eastwood Wire Mfg. Co., Belleville, N. J.
Estey, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff
Howard & Morse, 45 Fulton, N. Y.
N. J. Wire Cloth Co, Trenton, N. J.
Reliance Wire Wks. Co., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
W. S. Tyler Wire Works Co., Clev'd.
Wright & Colton Wire Cloth Co., Worcester, Mass.

Wire Cutters.
King, J. M. & Co., Watertown, N. Y.

Wire Dies.
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.

Wire Door Mats.
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.

Wire Fences.—*See Fencing, Iron and Wire.*

Wire Goods, *Manufacturers of.*
Brooks, W. S. & Sons, Chester, Conn.
Darby, Edward & Sons, Phila.
Field-Lange Wire & Metal Co., St. Louis Mo.
Gilbert & Bennett Mfg. Co., N. Y.
E. Jenckes Mfg. Co., Pawtucket, R. I.
Ludlow-Saylor Wire Co., St. Louis.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
Wire Goods Co., Worcester, Mass.
Wickwire Bros, Cortland, N. Y.

Wire Machinery.
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morgan Construction Co., Worcester Mass.

Wire Straightening and Cutting Machinery.
Adt, John & Son, New Haven, Conn.

Wire Nail and Tack Machines.
Eckstein, Chas G & Co., 41 John N. Y.

Wire Nails.
Amer. Wire Nail Co., Anderson, Ind.
Baackes Wire Nail Co., Cleveland, O,
Braddock Wire Co., Pittsburgh, Pa.
Field, A. & Sons, Taunton, Mass.
Fuller, Bros. & Co., 139 Greenwich St N Y.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
Lambert & Bishop Wire Fence Co. Joliet, Ill,
New Castle Wire Nail Co., New Castle Pa.
Phillips, E. & Sons, South Hanover Mass
Phillips, Townsend & Co., Phil., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
St. Louis Wire Mill Co., St. Louis, Mo.
Whitney, A. R. & Co., New York City

Wire Rods, Steel.
Amer. Wire Nail Co., Anderson, Ind.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.

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Broderick & Bascom, St. Louis, Mo.
California Wire Works, San Francisco
Hazard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons Rope Co., St. Louis
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester Mass.
Williamsport Wire Rope Co., Williamsport, Pa.

Woodenware.
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.

Wood-Working Machinery.
Egan Co., Cincinnati, O.
Sebastian Lathe Co., Cincinnati, Ohio.
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Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Wrenches, *Manufacturers of.*
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Coes Wrench Co., Worcester, Mass.
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Williams, J. H., Brooklyn, N. Y.

Wringers.
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Peerless Mfg. Co., Cleveland, O.

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Edes, Edw. L., Plymouth, Mass.

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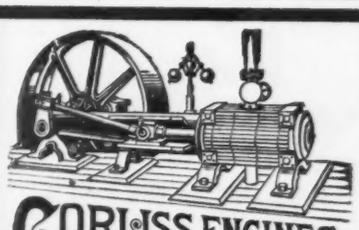

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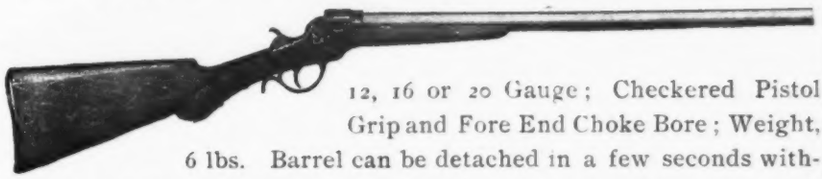

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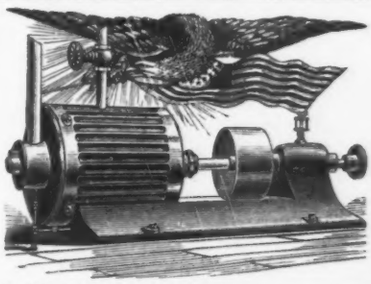

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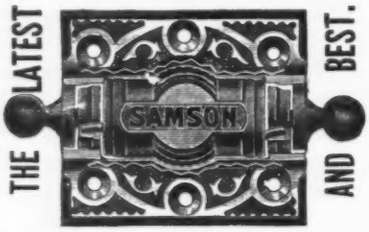

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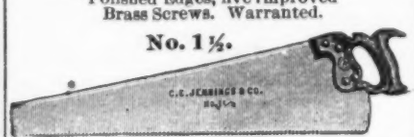

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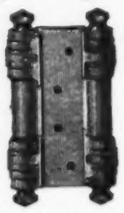
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